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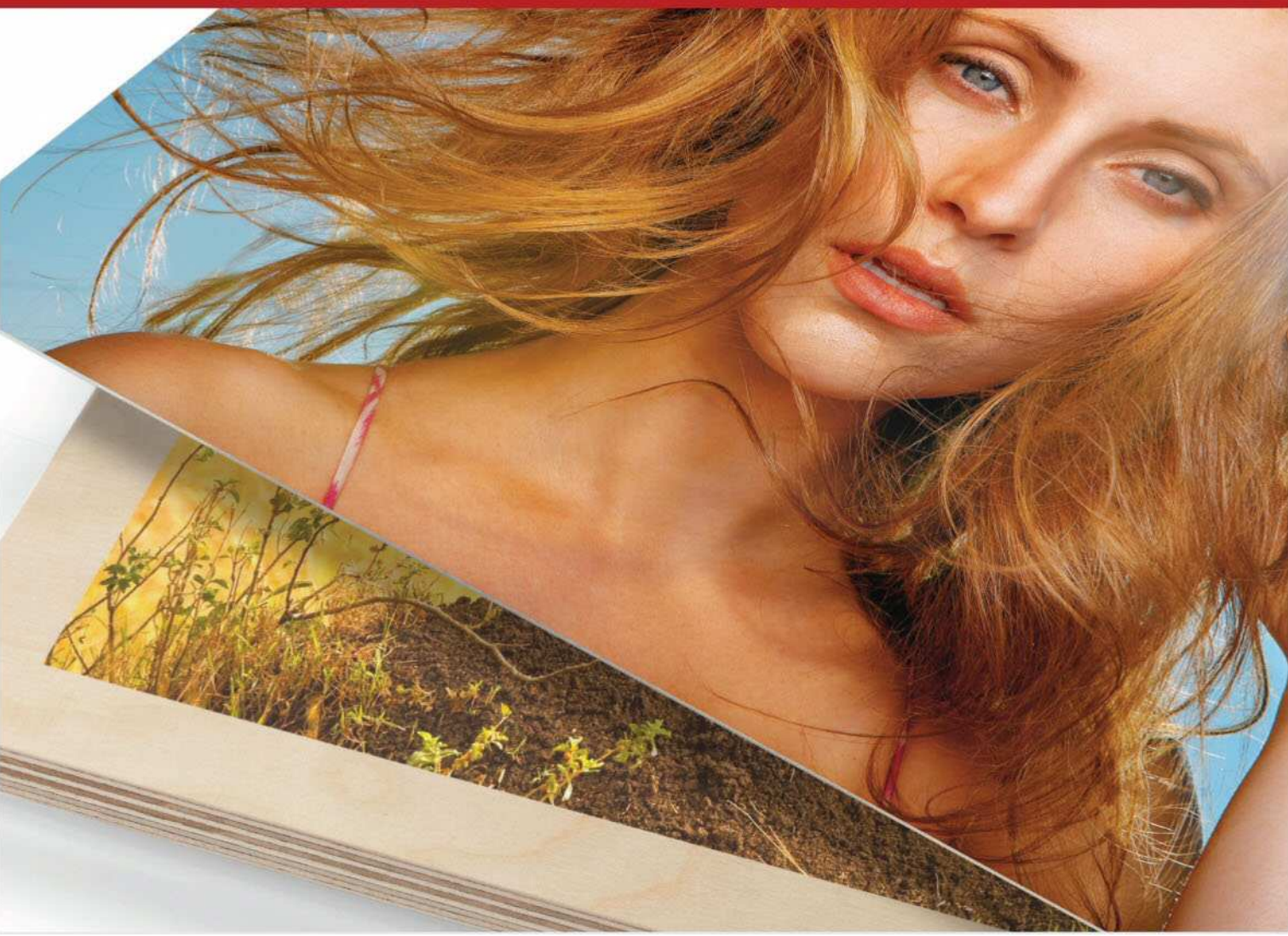
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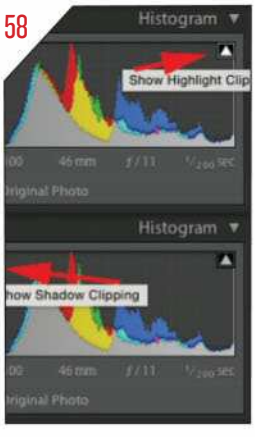
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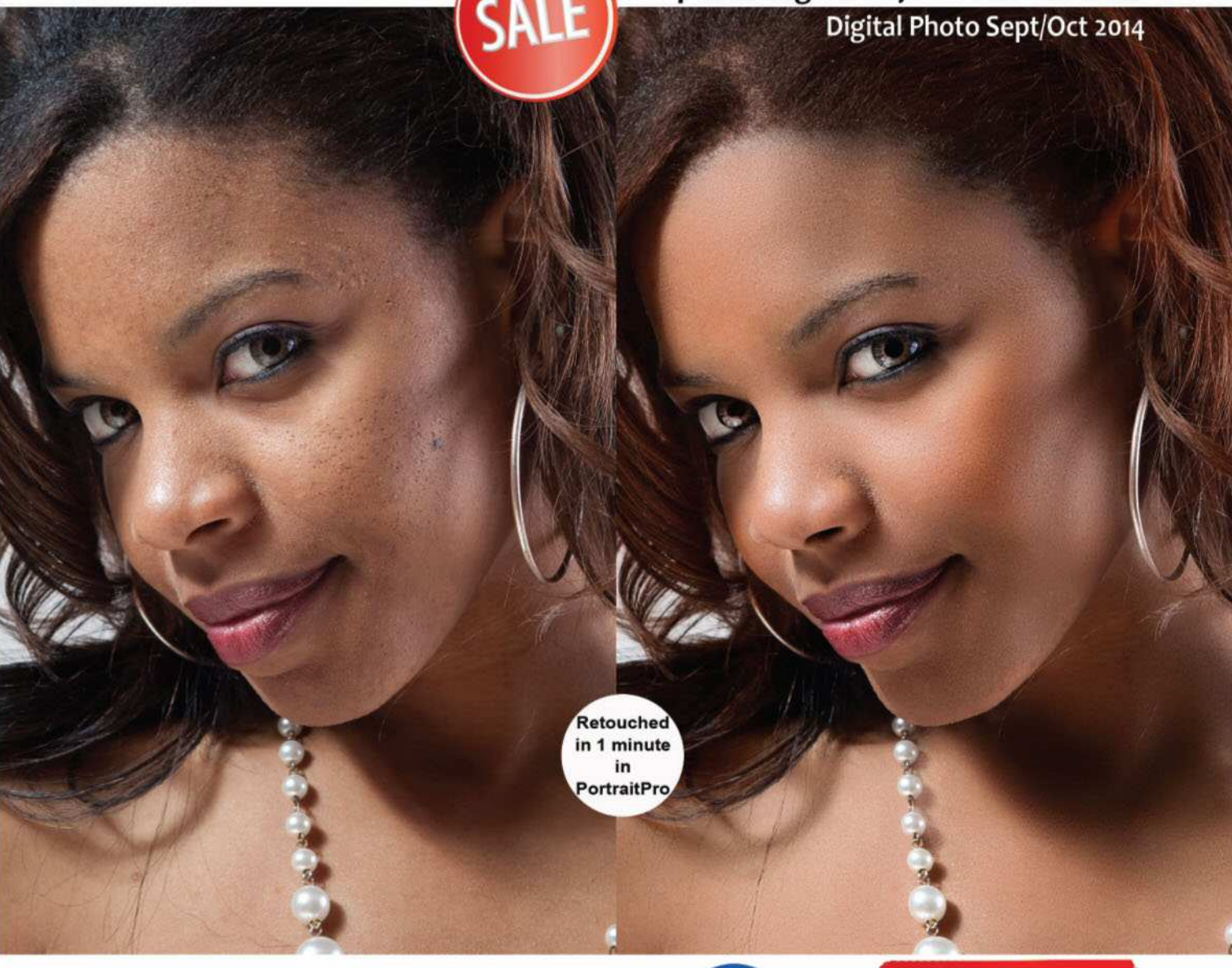
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No matter what photographic subjects you're passionate about, our annual How-To Special Issue is filled with techniques you can use to create extraordinary images, plus inspiration to explore new subjects and styles.

Macro photography, for example, opens up a fascinating world of details. "I want to connect people to the small world that's all around us," explains Damon Clarke, "and remind them of the smaller beauty that's so often missed." To get started in close-up photography, you don't need to make a major investment in equipment or attempt challenging subjects. Among his many tips for beginners in his article "Intro To Macro," Clarke advises, "I would recommend practicing on stationary subjects like flowers in a vase, moss on a rock or mushrooms poking through the leaves… Take the time to get to know your camera and experiment with different settings."

Another wondrous world to explore photographically waits underwater. With housings available for practically any camera or budget, underwater photography has become popular in recent years, and we've seen a lot of beautiful work, but none more imaginative than Elena Kalis', whose technical skill is accompanied by a mastery of props, costumes and storytelling, as showcased in her feature "Below The Surface." In addition to the technical complications, working with a model presents its own challenges. "Few people are comfortable enough underwater to open their eyes and relax their face and body for the required length of time to capture the images," notes Kalis. Starting with simple setups in shallow water makes it easier for both photographer and model to acclimate.

Astrophotography has also seen a huge rise in popularity, with Nikon going so far as to develop a camera, the D810A, specifically designed for the purpose. Adam Woodworth is among the innovative photographers creating stunning nighttime images using the latest camera and software technology. Woodworth provides the key exposure settings and compositing techniques for successful night sky exposures in his article "Night Light."

In addition to these specialized types of photography, we also have lots of tips and instruction in this issue that you can use every day, from Clay Cook's elegant one-light approach to portraits, to a definitive primer on using histograms and a simple step-by-step method for achieving perfectly neutral color by the numbers.

Finally, congratulations to the winners and finalists in our Weddings & Events 2015 Photo Contest. The winners are featured in this issue's "View." You can see all of the finalists on our website, dpmag.com. Landscapes, our current contest, is now underway and runs through late September. I hope you'll share your best landscape and scenic images with the *Digital Photo* community—your photo may be in a future issue!

—Wes Pitts, Editor

View

Weddings AND EV

2015



ENTS WINNERS

PHOTO CONTEST



Congratulations to the winners and all of the finalists of our Weddings & Events 2015 Photo Contest. Check out the Finalists' Gallery at dpmag.com/photo-contests/weddings-and-events/finalists.

FIRST PLACE

PHOTOGRAPHER:
SERG TISSO

"I love to shoot portraits. I wanted to focus on the beauty of the bride. I converted the original shot to black-and-white to focus on the essentials."

Nikon D700, AF Nikkor 85mm ƒ/1.4D IF



SECOND PLACE

PHOTOGRAPHER:
GILCHRIST YEO

"This photo was taken at a resort in Bali. The indoor environment is beautiful and stunning." Yeo used flash fill to complement the natural window light.

Canon EOS 5D Mark II, Tamron SP AF 17-35mm ƒ/2.8-4 Di LD Aspherical (IF)



THIRD PLACE

PHOTOGRAPHER:
MARTA ANGUS

"This was the 10th wedding anniversary of two of my best friends, Charysse and Dustin, pictured in the center. Her parents threw this amazing, beautiful party at the Hotel Georgia in downtown Vancouver. They hired me to photograph the family and guests. I didn't have to work the whole night—Charysse wanted me to participate in the celebrating. It was an awesome night. I got to do what I love. This was the last photo I took before I kicked off my heels, had a glass of champagne and danced the night away. We had planned to set off the confetti at a certain point. Everyone was on the dance floor and the timing went perfect. I love this photo because of the people in it. It captures what the whole party felt like and the great friends we have."

Canon EOS 6D, Sigma 12-24mm ƒ/4.5-5.6 DG HSM II, Canon Speedlite 430EX II





▲ HONORABLE MENTION

PHOTOGRAPHER: VEDRAN VIDAK

"This photo was made after the wedding ceremony when Dinko and Andrea had a break before the dinner. I observed their emotional moment, went outside on the street and made the shot through the window. There was a perfect illumination from the table lamp, so I had a perfect moment to capture this."

Canon EOS 5D Mark III, Canon EF 50mm ƒ/1.2L USM

◀ HONORABLE MENTION

PHOTOGRAPHER: DAVE CORBELL

"This photo was taken at the historic Elkridge Furnace Inn in Elkridge, Maryland. The Inn itself is circa 1744 and is part of the National Register of Historic Places, and dates back to the Civil War and the Underground Railroad. This day in itself was perfect—you couldn't have asked for a better day for a wedding with a couple as nice as Alex and Laura. The room that the photo was taken in had beautiful painted vines on the walls, and a huge half-moon window that overlooked the grounds and the water's edge. After the ceremony we needed to get some pictures on the grounds and in the Inn itself. The lighting inside the Inn was fantastic and there was no need for a flash. I had asked Alex and Laura to step towards the mirror where the soft lighting just beamed beautifully adding a natural tone to the photo. This photo turned out to be one of the favorites of the wedding party."

Sony A350, Sony DT 18-70mm ƒ/3.5-5.6



◀ HONORABLE MENTION

PHOTOGRAPHER: DAVIDE CHINA

"The image was shot in New York City at a place called Loft II. It's a multi-level venue that's just a loft space where you have to provide all services. I was done with all the formal shots and wandering from level to level trying to grab some photojournalistic shots prior to the ceremony. Out of the corner of my eye I spotted the best man by the window. I'm not sure if he was studying the reading that he was to do at the ceremony or the speech he was to give at the reception. In any event, I quickly picked up my camera and captured this image."

Fujifilm FinePix S2 Pro, SP AF 28-105mm ƒ/2.8 LD Aspherical (IF)

▼ HONORABLE MENTION

PHOTOGRAPHER: BRENT LOOYENGA

"The bride and groom had decided to do a first look, which took place under a large oak tree overlooking the lake. It was a beautiful moment that went really smoothly, after which we went about trying to find great places to take photos. Our dilemma was the sun was popping in and out from behind cloud cover, so we retreated behind the Jewett House, where the ceremony was taking place, and were taking some photos along the back wall. We really liked the light here, and we placed the bride along some stairs so that we could also get a shot from directly above. The bride was the real show here; with her almost too perfect smile and excellent complexion it made taking, and editing the photo very easy, with basically no alterations to the photo beyond color correction and a slight increase to contrast."

Canon EOS 5D Mark II, Canon 70-200mm ƒ/2.8L IS USM



Next



AF-S NIKKOR 500mm ƒ/4E ED VR



AF-S DX NIKKOR 16-80mm ƒ/2.8-4E ED VR

THREE NEW NIKKOR LENSES

Nikon has introduced three new lenses, all featuring Nikon's electromagnetic diaphragm for consistent exposures during high-speed shooting. For DX (APS-C) Nikon DSLR users, there's the **AF-S DX NIKKOR 16-80mm ƒ/2.8-4E ED VR** (equivalent in field of view to 24-120mm on a full-frame camera), which provides focal lengths ideal for everything from landscapes to portraits and travel photography. The lens can focus down to 1.2 feet at all focal lengths, for a maximum reproduction ratio of 0.22X at 80mm. It measures 3.1x3.3 inches and weighs 16.1 ounces, and lists for $1,069.95.

For all Nikon DSLRs, DX and full-frame FX, the new **AF-S NIKKOR 500mm ƒ/4E ED VR** and **600mm ƒ/4E ED VR** telephotos are optimized for today's high-resolution sensors and high-speed DSLRs, and cut weight considerably over their predecessors (the new 500mm ƒ/4E weighs 6.8 pounds vs. 8.5 for the 500mm ƒ/4G; the 600mm ƒ/4E 8.3 pounds vs. 11.5 for the 500mm ƒ/4G). Both also feature improved AF tracking performance. List prices are $10,299.95 and $12,299.95, respectively. **Contact:** Nikon, www.nikonusa.com.

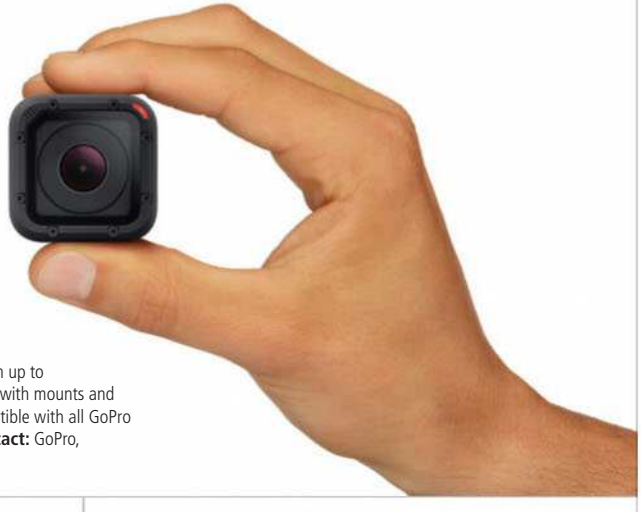


AF-S NIKKOR 600mm ƒ/4E ED VR



GOPRO HERO4 SESSION

GoPro's latest action cam is the company's smallest, lightest and easiest to use. The new **HERO4 Session** is 50 percent smaller than other GoPro HERO4 cameras and weighs just 2.6 ounces, but can deliver 1080p video at up to 60 fps, as well as 8-megapixel still images up to 10 fps and time-lapse at intervals of 0.5-60 seconds. The unit is rugged and waterproof to 10 meters/33 feet—no housing required. The built-in battery delivers up to two hours of shooting per charge. Built-in WiFi and Bluetooth provide wireless connection to the free GoPro App, with which you can control the camera via your smartphone or tablet. An optional Smart Remote lets you operate multiple cameras from up to 182 meters/600 feet away. The Session comes with mounts and mounting buckles and hardware, and is compatible with all GoPro mounts. Estimated Street Price: $399.99. **Contact:** GoPro, shop.gopro.com.



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Next

SIGMA 24-35MM ƒ/2 DG HSM | A



Designed specifically for full-frame sensors (but also excellent with APS-C DSLRs), **Sigma**'s latest Global Vision Art lens, the **24-35mm ƒ/2 DG HSM | A** provides three popular focal lengths (24mm, 28mm and 35mm) with prime-lens image quality, plus the ability to change focal lengths at the twist of a wrist, and no need to carry three lenses into the field. A difficult-to-produce large-diameter aspherical element, an FLD element (equivalent in performance to fluorite) and seven SLD elements minimize field curvature and spherical and axial chromatic aberrations. An HSM AF motor and new AF algorithm deliver quick, smooth AF, along with full-time manual focusing when desired. The lens measures 3.4x4.8 inches and weighs 33.2 ounces, and takes 82mm filters. It will be available in Canon, Nikon and Sigma SA mounts. List Price: $999. **Contact:** Sigma, www.sigmaphoto.com.



CANON POWERSHOT G3 X

The flagship G-series **Canon** compact camera is the most rugged of the G-series, with dust and weather sealing about equal to that of the EOS 70D. It has a built-in 24-600mm (equivalent) ƒ/2.8-5.6 zoom, which can cover everything from landscapes to distant wildlife. Built-in intelligent image stabilization helps keep things sharper at all focal lengths. The **PowerShot G3 X** features EOS-like control (a first for the G-series) and can shoot 5.9 fps with CAF. The 20.2-megapixel one-inch CMOS sensor and DIGIC 6 processor optimize image quality at ISO settings to 12800. The 3.2-inch 1.62M-dot LCD monitor can be supplemented with an optional 2.36-megapixel EVF (recommended for handheld shooting at longer focal lengths). The G3 X does 1080p video at 60, 20 and 24 fps (with external mic and headphone jacks), and built-in WiFi with NFC add versatility. Star Trail and Star Time-Lapse Movie modes will delight fans of night sky photography. Dimensions are 4.9x3.0x4.2 inches; weight is 24.0 ounces. Estimated Street Price: $999.99. **Contact:** Canon, www.usa.canon.com.



DxO ONE CAMERA

DxO, best known for its advanced image-processing technologies (and DxOMark.com sensor ratings), has introduced its first camera. The **DxO ONE** connects to an iPhone or iPad via the Lightning connector, and uses the smart device's screen as the camera monitor. Featuring a 20.2-megapixel one-inch backside-illuminated CMOS sensor, the ONE delivers good performance in dim light (ISO range 100-51200), while its 32mm (equivalent) ƒ/1.8 lens can produce shallow depth of field and beautiful bokeh for portraits. The camera can also do 1080/30p and 720/120p video. SuperRAW mode shoots four images in rapid succession and merges them (when connected to your Mac or PC) using the latest in spatial and temporal noise reduction for even better image quality. The ONE is 2.65 inches tall and weighs 3.8 ounces. Estimated Street Price: $599, including (for a limited time) free licenses for DxO OpticsPro ELITE and FilmPack ELITE software. **Contact:** DxO, www.dxo.com.

SONY RX100 IV

Sony's RX100 cameras have been hot sellers from the start, combining good image quality with a pocketable package. The **RX100 IV** continues that, and then some. The new 20.1-megapixel one-inch Exmor RS CMOS sensor features a stacked configuration, with the pixel area on top, the high-speed signal processing circuitry below, and an on-chip DRAM memory chip below that. The 5X faster readout made possible by this provides 16 fps full-res still shooting with no blackout (but focus fixed at the first frame), a top shutter speed of 1/32000 and 4K video in-camera at 30p, super slow-motion up to 960 fps (40x) at 800x270 and full-pixel readout video with no binning or line-skipping. The tilting three-inch 1229K-dot external monitor is complemented by a 2.35M EVF. AF performance has also been sped up. Dimensions: 4.0x2.3x1.5 inches. Weight: 9.6 ounces. Estimated Street Price: $1,000. **Contact:** Sony, store.sony.com.





MINDSHIFT FIRSTLIGHT BACKPACKS

MindShift Gear's **FirstLight** backpacks were designed to hold large lenses yet meet airline carry-on specs. The 4.4-pound **FirstLight 20L** can hold a standard DSLR body and four to six standard zoom lenses, two mirrorless bodies and five to seven lenses, a 200-400mm zoom detached or a 300mm ƒ/2.8 lens attached to a camera body. The 5.4-pound **30L** can hold a gripped DSLR body with six to eight standard zoom lenses and a flash unit, a detached 500mm ƒ/4 super telephoto or a 400mm ƒ/2.8 attached to a body. The six-pound **40L** can hold two gripped DSLR bodies with six to eight standard zoom lenses and a flash unit, a 600mm ƒ/4 or a 500mm ƒ/4 with body attached. The FirstLight backpacks feature comfortable designs with 11 adjustment points, and exterior fabric is treated with waterproof coating. The packs also come with a seamless rain cover that can also serve as a ground cloth, and ballistic nylon bottoms for durability. Prices to be announced. **Contact:** MindShift Gear, www.mindshiftgear.com.

TAMRAC ANVIL BACKPACKS

Inspired by thunderstorm clouds and blacksmith tools, **Tamrac**'s new **Anvil backpacks** are tough units designed and manufactured to carry your gear safely on tough treks. The packs feature a comfortable airflow harness, Cordura fabric, Duraflex buckles and YKK zippers, and come in six sizes. The smallest will accommodate a pro DSLR with up to 600mm lens attached. The belt is removable, so if you have an Anvil backpack, you also have a belt unit. Quick-release straps can carry a tripod. Estimated Street Price: $229.95-$329.95. **Contact:** Tamrac, www.tamrac.com.





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TOKINA AT-X 24-70MM ƒ/2.8 FULL-FRAME ZOOM

With DSLR megapixel counts hitting remarkable levels, **Tokina** has introduced the **AT-X 24-70mm ƒ/2.8 high-performance zoom lens**, designed for high-pixel-count full-frame sensors. Among its 15 elements in 11 groups are three precision-molded all-glass aspherical elements (one of Super Low Dispersion glass) to control spherical aberrations plus three SD elements in the rear groups to minimize chromatic aberrations. The lens can focus down to 1.2 feet (0.21X maximum magnification), and features an SDM (Silent Drive Module) AF motor for quick, quiet autofocusing. It also features Tokina's One-touch focus Clutch mechanism, and allows you to switch between auto and manual focus simply by pushing the focusing ring forward (for AF) or pulling it rearward (for MF). The lens measures 3.5x4.2 inches and weighs 2.2 pounds. It's available in mounts for Canon and Nikon full-frame DSLRs (it can also be used on APS-C cameras). Estimated Street Price: $999. **Contact:** Kenko Tokina USA, www.kenkotokinausa.com.



RICOH GR II

Ricoh has added built-in WiFi with easy NFC connection to its flagship compact model. The new **GR II** retains its predecessor's compact dimensions (4.6x2.5x1.4 inches, 7.8 ounces), 16.2-megapixel APS-C CMOS sensor with no AA filter and 28mm (equivalent) ƒ/2.8 lens (with 9-blade diaphragm for natural bokeh). Seventeen effects include a new HDR Tone one. There's a built-in flash unit, plus the ability to control certain Pentax flash units wirelessly off-camera. A web-based app lets you control camera settings via almost any browser. The GR II can shoot up to 10 fps (4 fps with AF), as well as 1080/30p video. The 3.0-inch 1230K-dot LCD monitor can be supplemented with an optional shoe-mount optical finder. Estimated Street Price: $799. **Contact:** Ricoh Imaging, www.us.ricoh-imaging.com.



LAOWA 15MM ƒ/4 WIDE-ANGLE 1:1 MACRO LENS

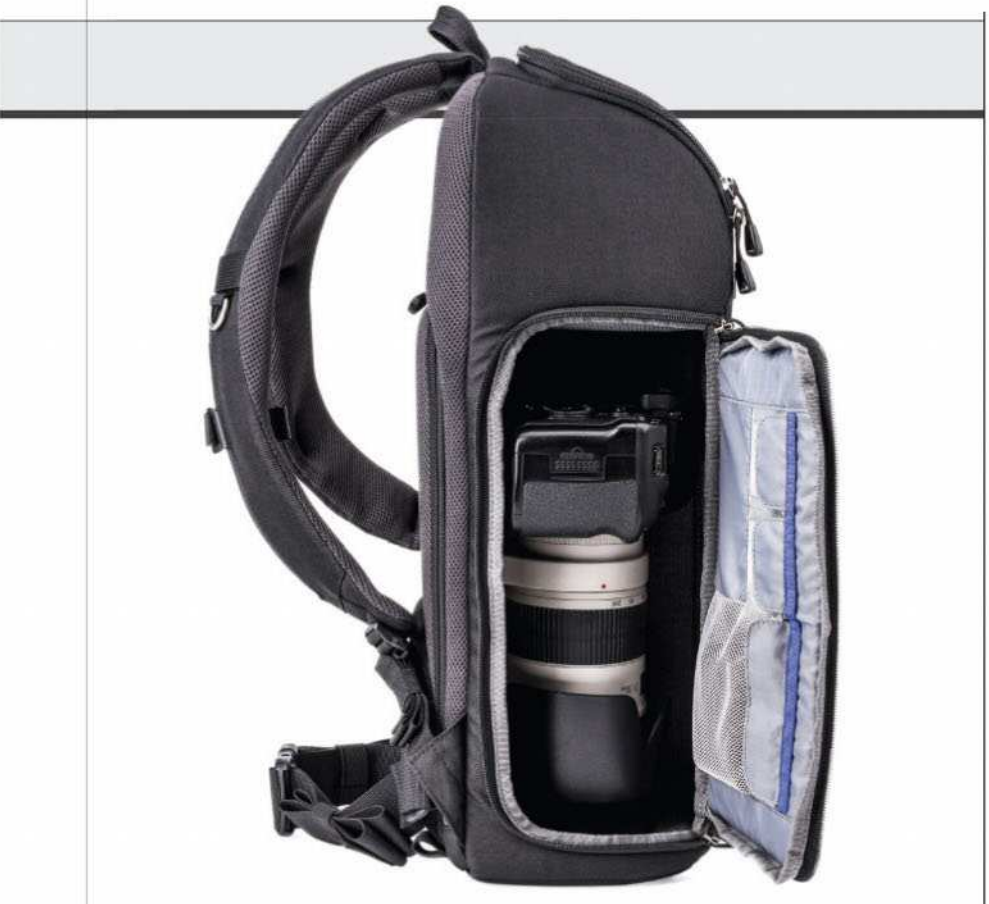
There are lots of wide-angle lenses on the market, and quite a few macro lenses. Now we have the world's widest-angle 1:1 macro lens: The **Laowa 15mm ƒ/4** takes in a 110° angle of view on a full-frame camera (85° on an APS-C camera), and will focus down to 4.7 inches (0.2-inch working distance), close enough to deliver a 1:1 magnification at the image plane. Superwide-angle macro photography opens up lots of photo ops for flower and small-critter photographers. The manual-focus lens is available in mounts for Canon, Nikon, Pentax and Sony A and FE digital cameras. Estimated Street Price: $479. **Contact:** Venus Optics, www.venuslens.net.



COTTON CARRIER ENDEAVOR BELT

Cotton Carrier's **Endeavor Belt** makes it easy to carry your DSLR or mirrorless camera, comfortably and with hands free. It holds the camera securely, yet provides easy access. Made of durable 1680 denier polypropylene and fitted with a Lexan camera receptacle, the device includes a shoulder strap with siding safety tether and a small pocket for a wallet, cell phone or extra lens. Estimated Street Price: $89. **Contact:** Cotton Carrier, www.cottoncarrier.com.

check out www.dpmag.com/next for more info



THINK TANK PHOTO TRIFECTA 10 DSLR BACKPACK

Think Tank Photo's **Trifecta 10 DSLR Backpack** can hold your DSLR with the three workhorse zooms (ultrawide, normal, tele), for example, a Nikon D810 with 70-200mm ƒ/2.8, 24-70mm ƒ/2.8 and 14-24mm ƒ/2.8—plus an iPad. And you can access them easily without removing the pack, via the left side, right side or rear panel. DWR coating protects against the elements, while the contoured design helps you move through brush. Estimated Street Price: $159.95. **Contact:** Think Tank Photo, www.thinktankphoto.com.



PANASONIC DMC-CM1 COMMUNICATION CAMERA

The world's only one-inch-sensor camera with Android OS and unlocked GSM smartphone functionality, **Panasonic**'s **DMC-CM1** features a 20.1-megapixel one-inch high-sensitivity MOS sensor, a 28mm (equivalent) ƒ/2.8 Leica DC lens and a huge 4.7-inch 6220K-dot rear monitor. Aside from full auto and manual camera features, the CM1 can do 3840x2160/15p 4K video and 1080/30p Full HD, and shoot stills at 5 fps with live view, 10 fps without live view and 50 fps at 5-megapixel resolution. It has built-in Wi-Fi with NFC, Bluetooth and high-speed LTE technology, as well as GPS. It measures 5.3x2.7x0.8 inches and weighs 7.2 ounces. Estimated Street Price: $999.99. **Contact:** Panasonic, shop.panasonic.com.



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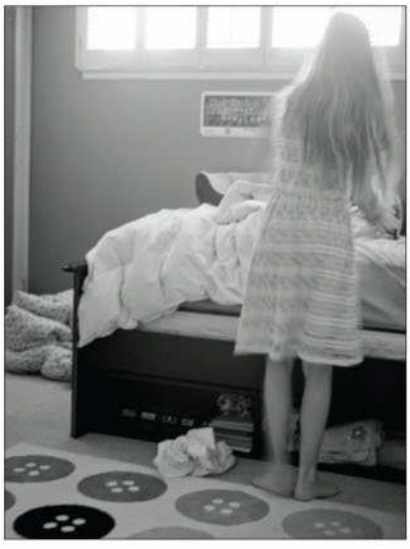
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An Everyday Opportunity

HOW A PHOTO PROJECT WITH PURPOSE AND DEADLINES CAN IGNITE CREATIVITY

BY TRACEY CLARK OF SHUTTER SISTERS

Creative inspiration can come in a number of ways. Quite often it hits when we least expect it. There's no denying when it strikes us, when we are reignited with photographic passion to capture the world around us with fresh eyes. But what happens when we don't want to wait? It can be tricky to crack the code on coaxing the muse of inspiration when we need it.

Over the years, I have found that I have been particularly inspired when I have a specific assignment to focus on, and even more, when there's a collective energy behind it (meaning a group of people are participating in the assignment at the same time). Working on a photo project, either alone or in a group, can be the perfect way to ignite a spark of creativity.

I don't recall exactly when I first came across Ali Edwards' "Day In The Life" project, but I do remember distinctly the creative charge I experienced when I participated. Waking up in the morning with a photographic "purpose" to capture every element of my daily life was exciting and invigorating. From the minute I woke up that morning, I looked at everything around me with an entirely new perspective. Having a creative photo assignment like this to work on, I was reminded that, as a family historian, I had an important, even noble story to tell.

Documenting my daily life using photography as my primary storytelling tool is nothing new to me. I did write a book about it, after all. But there is something fresh and motivating that comes from the creative push of a "project" such as "Day In The Life." Framing the photography of our everyday lives is an important and valuable undertaking

IN PRAISE OF PHOTO ASSIGNMENTS

Staying creatively motivated when going it alone isn't always easy. It can be challenging to hold ourselves accountable, which is why it's nice to have someone to do that for us. When we're given a specific assignment, we're more prone to actually do it. Dates, times and deadlines help us plan, produce and complete a given project.

BOOKS: There are so many photography books available. Look for those that offer not only how-tos but also give you prompts or challenges to partake in. Being prompted to shoot with a specific end in mind can be a great way to boost creativity.

CLASSES: There are ample opportunities for photo classes, both in traditional and virtual class settings. Never underestimate the power of being in school again. It can creatively charge your work in a whole new way.

PROJECTS: Like Edwards' "Day In The Life" (she also offers an entire "Week In The Life"), the projects that happen in real time, with a collective community participating together, can offer not only inspiration, but also a palpable electric energy that comes from being part of a group. You can find out more about Ali Edwards on her website: aliedwards.com.



that changes everything. We're not running around shooting meaningless snapshots, we're capturing the very heart and soul of our lives. It is important stuff; not only because what we're documenting is our life, right now, as it is, but it's also the everyday stuff we will all too soon forget. As I approach a new chapter in my life and prepare to send my firstborn off to college, I can't begin to express how much I value every picture I have taken of her—of us—over the years. I can think of no better way to honor myself and my family than by documenting the precious and fleeting details of each day.

I have found I look forward to being prompted to participate in a project like "Day In The Life." I enjoy having a date on the calendar set aside to approach everything I experience as an opportunity to document the details of my life and the life of my family. It's become a day to participate in a mindful photographic practice where I not only observe and photograph, but also revere the magic in the mundane. And it helps me tap into the wellspring of inspiration that can be found in my own life, each and every day. DP



TRACEY CLARK *is the founder of Shutter Sisters, a collaborative photo blog and thriving community of female photo enthusiasts, shuttersisters.com. Learn more about Tracey and her work at* ***traceyclark.com.***



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For more than 50 years, Sigma has been dedicated to continually refining their approach to the design of superior photographic optics. As part of that practice, Sigma reorganized their lens offerings into three distinct lines: Sports, Contemporary and Art. More than simply a rebranding for marketing, this strategy emphasizes that each line is developed with consideration of the unique photographic challenges specific to the subject.

Sigma's Sports line delivers the durability and performance critical to capturing the decisive moments so necessary for successful sports and wildlife photography. Sports line lenses have focus limiter switches and are compatible with Sigma's innovative USB Dock, which allows you to fine-tune lens performance parameters such as AF speed, focus limiter and Optical Stabilizer function.



SPORTS LINE BY SIGMA

Defined by focal range, speed, accuracy and sharpness, the lenses in the Sports line are built to withstand the rigors of heavy outdoor use on full-frame and APS-C DSLRs. Sigma currently offers two lenses in the Sports line, with more in development.



The 120-300mm F2.8 DG OS HSM | S has a fast ƒ/2.8 maximum aperture across the zoom range. Inner Focusing and Zooming ensure the lens stays balanced on your tripod, while Sigma's Optical Stabilizer (OS) technology counteracts camera shake when shooting handheld.

When even greater telephoto range is required, the 150-600mm F5-6.3 DG OS HSM | S is outstanding. It features an enhanced OS system with an accelerometer to detect vertical or horizontal panning orientation. A zoom lock allows you to fix the lens to any focal length. Both lenses feature dustproof and splashproof construction.

www.sigmaphoto.com SIGMA

Night Light

CREATE STUNNING LANDSCAPE ASTROPHOTOGRAPHY IMAGES

TEXT & PHOTOGRAPHY
BY ADAM WOODWORTH



WESTERN BROOK POND BOARDWALK

SKY EXPOSURE: Star-stacked blend of ten exposures, each at 14mm, ISO 12800, ƒ/2.8, 10 seconds.

FOREGROUND EXPOSURE: Blend of two exposures, one at ISO 1600, ƒ/2.8, 2 minutes and the other at ISO 1600, ƒ/2.8, 3 minutes.

NIKON D810A, NIKKOR 14-24MM ƒ/2.8



Welcome to the night sky!

Get ready to stay up all night taking in the wonder of the stars. I've been shooting landscape astrophotography for the past four years, and these are some of the most important tips for success. Before we start, I want to note that these images are the result of blending multiple exposures together in Photoshop. The technical details necessary to get a low-noise and in-focus wide-angle image at night usually requires multiple exposures, something we'll cover in more detail.



LEFT: THE TABLELANDS

SKY EXPOSURE: Star-stacked blend of ten exposures, each at 14mm, ISO 12800, ƒ/2.8, 10 seconds.

FOREGROUND EXPOSURE: Blend of two exposures, each at ƒ/2.8, ISO 1600, 8 minutes.

NIKON D810A, NIKKOR 14-24MM ƒ/2.8

CHOOSING A CAMERA AND LENS

Until recently, you needed a generous budget to capture high-quality images of pinpoint stars in the sky, but over the past few years cameras have come a long way, and you can get good results with a mirrorless "crop" camera and a fast wide-angle lens, such as a Sony A6000 or Fujifilm X-T1 and the Rokinon 12mm *f*/2 lens. The best results are still found using full-frame cameras, but the truth is that you can produce amazing night sky images with many modern cameras.

You want a large-aperture wide-angle lens that is sharp with minimal comatic aberration even at its largest aperture, or at least at *f*/2.8. To capture as much light as possible in the sky over a 30-second or shorter exposure, your lens needs to be pretty sharp even at its largest aperture, or you'll get soft stars.



RIGHT: ACADIA CLIFFS

SKY EXPOSURE: Star-stacked blend of five exposures, each at ISO 6400, ƒ/2.8, 14mm, 10 seconds.

FOREGROUND EXPOSURE: Blend of three exposures: two at ISO 1600 ƒ/2.8 for 10 minutes, a third at ISO 1600 for 30 seconds at ƒ/5.6, with light painting on the immediate foreground.

NIKON D800E, NIKKOR 14-24MM ƒ/2.8



ABOVE: SCREW AUGER FALLS

SKY EXPOSURE:
ISO 3200, 14mm, ƒ/2.8, 25 seconds.

FOREGROUND EXPOSURE:
ISO 1600, ƒ/2.8, 20 minutes.

NIKON D800E, NIKKOR 14-24MM ƒ/2.8

I currently use the Nikon D810A with a Nikkor 14-24mm ƒ/2.8 lens for most of my night photography, but I also have a Sony A6000 and Rokinon 12mm ƒ/2 lens for those times when I want to hike long distances without all the weight of a full-frame kit. I recently held a workshop in Acadia National Park, and one of the attendees was using a Fujifilm X-T1 and Rokinon 12mm, and his results were excellent.

CAPTURING THE STARS

To capture pinpoint stars—as opposed to long star trails—you need to use exposure times that are generally 30 seconds or less. The actual exposure time will depend on your focal length. A general rule of thumb is the "500 Rule", which states that your focal length

ESSENTIAL GEAR FOR ASTROPHOTOGRAPHY

FULL-FRAME CAMERA. While you can get amazing results with even crop cameras these days, you'll have the least frustration and best quality with a modern full-frame camera.

BRIGHT WIDE-ANGLE LENS. You'll want ƒ/2.8 or better, and on full-frame 14mm or so is great for ultrawide shots.

STURDY TRIPOD. For long exposures, sometimes in the wind, you'll need a reliable and sturdy tripod and head.

REMOTE TIMER. You'll likely need a remote release or intervalometer to do exposures longer than 30 seconds and star stacking.

HEADLAMP WITH RED LED. Save your night vision by using a headlamp that has a red LED mode, available in many headlamps these days.

HAND WARMERS OR OTHER LENS HEATER. For keeping moisture off your lens at night.

COTTON CLOTH & AIR BLOWER. Cotton soaks up water, microfiber doesn't. You may need to wipe the moisture from your lens and/or dry it with the blower.

EYEPIECE SHADE. If you're using a DSLR and the eyepiece doesn't have a built-in flip-down shade, then you'll need something to cover the eyepiece to prevent light leakage during long exposures.



NIKON D810A

Created specifically to excel at capturing the night sky, the D810A's full-frame, FX sensor features an IR filter optimized for improved sensitivity to the deep-red wavelength known as H-alpha, important to astrophotography. It also features an electronic front curtain, eliminating vibrations that would compromise sharpness, plus specialized exposure modes for long exposures, time-lapse and interval shooting. **List Price: $3,799.**



ABOVE: PORTLAND HEAD LIGHT PANORAMA

This panorama consists of ten vertical shots stitched together in Photoshop. Each shot was at ISO 3200, 14mm, for 25 seconds at ƒ/2.8.

NIKON D800E, NIKKOR 14-24MM ƒ/2.8

(35mm equivalent) divided into 500 gives you an exposure time that would have small amounts of star trails. However, I personally find this rule often results in star trails that are too long, so I usually back off the exposure time.

You also need to use a high ISO in order to capture enough light from the dark sky. Generally, ISO 3200 or higher is a good start. An ISO setting that's too low won't capture enough detail in the sky, and one that's too high might result in more noise than stars. Experiment to find the best results with your camera.

When shooting single exposures of the sky, I'm frequently at a focal length of 14mm, with my aperture set to ƒ/2.8, an exposure time of 25 seconds, and an ISO between 6400 and 12800 on my Nikon D810A.

FOREGROUND EXPOSURES

Since you need to capture the stars at a very wide aperture, focused at infinity, and a very high ISO, this will often result in the foreground being out of focus and noisy. By taking additional exposures of the foreground at different focus distances and lower ISOs, you will have a cleaner and in-focus foreground that you can blend with your sky exposure in Photoshop to create a single image that has pinpoint stars and the entire scene in focus.

When possible, I like to shoot my foreground exposures at ISO 1600 or lower. The exposure time can vary anywhere from one minute to 30 minutes, depending on the ambient light. You can use light painting to brighten the foreground for a shorter exposure time, but this can lead to harsh shadows and specular highlights. I usually prefer to capture the scene using ambient light.

STAR STACKING

You can create an image that has truly pinpoint stars with exceptionally low noise by using a technique known as "star stacking". Using this technique, you take multiple very short and very high ISO exposures of the stars, and then align and average those exposures together in software. The result has pinpoint stars due to the short exposure time, with very low noise due to the averaging of the noisy images. You can do the alignment and averaging in Photoshop by masking out the foreground in each image before doing the alignment, then putting the aligned layers into a single Smart Object and choosing the Median blend mode for the Smart Object. If you're on a Mac, you can use



SKY EXPOSURE: Single shot at ISO 3200, 14mm, ƒ/2.8, 1 second.
FOREGROUND EXPOSURE: Single shot at ISO 1600, 14mm, ƒ/5.6, 2 minutes.
NIKON D810A, NIKKOR 14-24MM ƒ/2.8

ABOVE: VIKING LIGHT

Photographing the Northern Lights is a little different than astrophotography, in that your exposure time depends on the brightness and movement of the aurora. Generally, you're forgoing pinpoint stars and doing whatever is necessary to get a good aurora shot. If the aurora is bright enough, you can use a very short exposure to capture the pillars and arcs of light and freeze them more, but if the aurora is very dim, you may need to do a longer exposure to capture enough light—at the cost of blurring the aurora movement. I've used shutter speeds of anywhere from one second to 30 seconds with the aurora, depending on my location and the conditions. Other than that, the foreground exposure technique and blending foreground with the sky in Photoshop is the same.

the program Starry Landscape Stacker to automate much of the star-stacking process for you. You can then take the resulting star-stacked image and blend it with your foreground exposures just as you would with a single exposure for the sky.

For star stacking at 14mm and ƒ/2.8 with my D810A, I normally use ISO 12800 for ten seconds, and take ten exposures. You should experiment to find what works with your setup. Some cameras will have a lot of magenta sensor noise on the edge of the frame when shooting a really high ISO for a short time, so keep this in mind and see how your camera performs. You may need to bring the ISO down anywhere from 1/3 of a stop to a full stop to get rid of the magenta noise with these short ten-second exposures. When I was using a Nikon D800E, I needed to shoot at ISO 5000 or 4000 for star stacking to avoid the magenta noise problem.

DEALING WITH HOT PIXELS

Hot pixels are the bane of night photographers. They happen excessively with long-exposure, high-ISO photos. The easiest but often most time-consuming way to get rid of them is to use Long Exposure Noise Reduction (dark frame subtraction) in your camera. This setting causes the camera to take another exposure at the exact same settings as the actual exposure but with the shutter closed, and then use that "dark frame" to map out the hot pixels in the actual exposure before writing out the file. This effectively doubles your exposure time. If you're doing star stacking, you don't need to use dark frames since the averaging process will get rid of hot pixels, but single-sky shots and long-exposure foreground shots often have lots of hot pixels. If you don't want to wait for the dark frame exposures, there are ways to do it in software, but this can be time consuming, as well.

FIND A DARK SKY AND SHOOT!

Now that you know the basics, get out under a clear and moonless night sky, away from light pollution, and practice. Happy shooting! DP



ADAM WOODWORTH *is a landscape photographer, fine-art printer, award-winning filmmaker, and software engineer. He has had a love of photography for most of his life, and one of his main focuses is landscape astrophotography. To learn more about his techniques, check out the video tutorial available on his website:* ***www.adamwoodworth.com.***





Intro To Macro

EXPLORE THE FASCINATING WORLD OF CLOSE-UP PHOTOGRAPHY

TEXT & PHOTOGRAPHY BY DAMON CLARKE

Imagine a land ruled by giant eight-eyed creatures the size of a car with long translucent fur, colorful stripes and purple iridescent fangs. Imagine a land where huge balls of glistening water fall from the sky and cling to every surface, magnifying and refracting sunlight, a land where you can explore flowers the size of a house with beds of pollen and sparkling translucent walls. I can show you a way to go there without even leaving your backyard, and you can bring your camera!

Macro photography in the wild is not for the faint of heart. If there is one thing nature photographers know, it's that nature rarely plays along. On the small scale, things get even worse. The tiny world is very dynamic—everything feels fast-paced, your camera is shaking with every breath, bugs race by in a split second and flowers blow wildly around the frame in the slightest breeze. To the casual observer, these motions are barely perceptible, but when your world view is only a half-inch across, these tiny movements appear very large.

If you're just starting out, I would recommend practicing on stationary subjects like flowers in a vase, moss on a rock or mushrooms poking through the leaves. As you get more comfortable, start shooting low-lying flowers, or pick windless days. Moving subjects like insects or tall flowers add a layer of difficulty to the shot and can quickly get frustrating when you're not comfortable with your camera. Take the time to get to know your camera and experiment with different settings.



BASIC EQUIPMENT

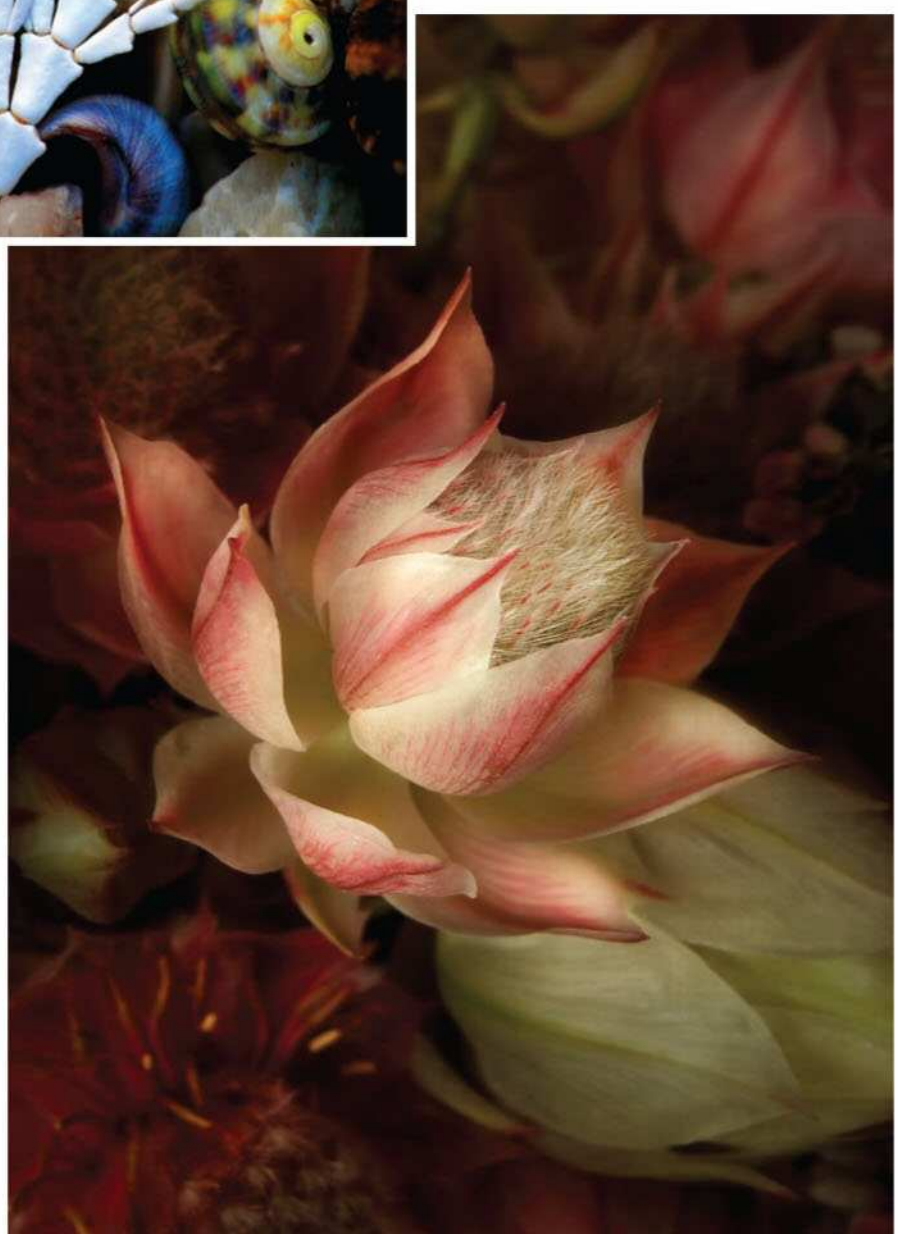
Your camera is your first step in exploring the macro world. The number-one comment people make about my equipment is how expensive or complicated it must be. It doesn't have to be, anyone with a camera can try macro photography. These days most consumer cameras come with a macro setting built in. For those with removable lenses, there are some easy ways to get focused, up close. For less than $10, you can buy a lens adapter that allows you to mount your existing lens to your camera backwards. Reversing your lens instantly turns it into a macro lens, allowing you to focus up close. This can produce great results, but you lose features like autofocus and auto aperture.

The best way to turn your everyday lens into a macro lens is to buy an extension tube. Extension tubes move your lens away from your camera's sensor, automatically allowing you to focus closer to the subject. This is, by far, the best way to get amazing macro ability without the cost of a new lens.

Another way to adapt your lens for macro is to buy a clip-on lens, which attaches to your filter threads. You have to be careful to buy an optically corrected lens like the Raynox 250, which has two lens elements. This was one of my earliest purchases and something I still use today when traveling light. Avoid macro filters with a single glass element as they may create color and optical distortions that degrade the quality of your photo.

If you have the budget, buying a prime lens with macro capability is your best option. You might be surprised to find that your current lens already has macro capability. If you can't tell, just experiment to see how close you can get to the subject and still focus. You'll know you are in the realm of macro photography if an inch-wide subject like a daisy fills the frame when focused. You will need to be anywhere from around a foot down to an inch or two away from the subject.

Generally, longer lenses allow you to shoot macro farther from the subject, handy for flighty insects. If you are shooting a live subject, move as slowly and steadily as you can so that you don't scare it away. Insects watch your silhouette against the sky, so sudden changes like sticking your arm out to the side





will give them a fright. Always be sure to respect animals, and if you capture them for a shoot, always make sure that they are released again exactly where you found them. Some insects and animals rely on specific types of plants or food sources to survive, not to mention being able to find a mate!

FOCUS & LIGHT

With tricky subjects, the easiest way to find your focus is to turn off your autofocus. Things get very confusing when you are moving, your subject is moving and the lens is hunting around for focus. Instead, set your lens manually to the closest focus point and slowly move your camera toward the subject until it comes into focus. If you would like a wider field of view, after you find focus, simply move your camera away slowly as you adjust your focus.

When you finally do find focus, one thing you'll notice is that things look very blurry around your subject. Even if you achieve perfect focus on one part of the subject, other parts ahead of and behind it are blurry. This is the effect of shallow depth of field, and the closer you get, the shallower it gets.



For me, this blurring effect can be very pleasing. I like to use it to draw attention to the details of my subject, as the viewer's eyes tend to settle on areas of detail first. Leaving areas of soft focus around your main point of interest helps people to see what you want them to see.



As an artist, I'm more concerned about the quality of the image, creating depth and beauty rather than showing every last detail. Some people, however, enjoy a more "documentary style" showing as much clarity and detail as possible by pushing for a greater depth of field.

Achieving a greater depth of field is challenging, and the closer you get to the subject, the harder it becomes. To correct this, adjust your aperture. Typically, in natural light, I shoot with an aperture setting of $f/5$ to $f/11$. By making the aperture smaller, you block out more of the blurred light, creating greater depth of field. Unfortunately, some of the focused light is also blocked, causing your photos to grow darker.

To counteract this darkening, you will need to increase the amount of light getting into your camera. One way is to slow down your shutter speed. The longer your camera has to record the image, the more light it can register. With moving subjects or a shaky camera, these longer exposures can cause motion blur in your photo. For stationary subjects, camera shake is relatively easy to fix: use a tripod.

Shooting moving subjects is a bit harder. The best solution is to handhold your camera and get more light on the subject so that you can use a faster shutter speed. For most shots, 1/125 of a second or less works well, but I have had some luck as slow as 1/50 of a second—luck being the operative word.

There are several ways to get more light on your subject. You can bring along a reflector or white card to bounce natural light into the scene, but this isn't always enough. When you want to get really close and still keep a decent depth of field, you will need to bring in artificial light. A lot of amazing macro images are taken using a normal camera flash and diffuser. Anything white and translucent will work as a flash diffuser. Diffusers soften the light, making it look more natural and pleasing. Remember, your field of view is very small so you don't need huge lights or reflectors. Even an LED flashlight works great if it has a pleasing color spectrum.

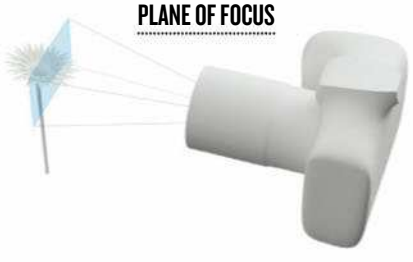
As a last resort, you can increase the sensitivity of your camera. By doing this, you are able to use a smaller aperture and a faster shutter speed. Typically, I shoot naturally lit scenes at around ISO 1600, but some newer cameras are capable of extremely high sensitivity of 12,800 and beyond. The drawback with high ISO settings is that as you increase your camera's sensitivity, your photos will have more noise, which compromises color, detail and sharpness, degrading the quality of the image. Experiment with your camera to find a noise level that is acceptable to you. If you only print smaller photos or share them online, noise is less critical than when producing a large, detailed fine-art print.

Even with all this extraordinary effort

to optimize your light, you will still be lucky to have an 1/8-inch depth of field. At normal scales, depth of field can be thought of in terms of distance from the camera. With macro photography, focus is achieved within such a thin plane that I find it easier to visualize it as a flat sheet floating a few inches in front of my lens. Changing the angle of your camera will change the orientation of this plane relative to your subject.

> If you're just starting out, I would recommend practicing on stationary subjects like flowers in a vase, moss on a rock or mushrooms poking through the leaves ... Take the time to get to know your camera and experiment with different settings.

Find details on your subject that you want to show and move your camera until the invisible plane of focus falls through them. For example, with a flat subject like a butterfly with open wings, position the camera as close to perpendicular to its back as possible. This will ensure that all wing surfaces fall within the plane of focus.



With macro photography, your compositional options are limited by the orientation of the plane of focus. You will have to compromise between having all details in focus and having a pleasing angle for your subject. Take lots of shots and play with angles and composition so you have lots to choose from.

PAY ATTENTION TO THE BACKGROUND

Even small camera angle changes have a huge effect on the background of your shot, bringing new colors, textures and highlights into your field of view. With macro's extremely short depth of field, the background is often blurred to abstraction, making for beautiful backdrops.

Play with angles to find a perfect look for your subject. Try to find contrast between your subject and the background to create pleasing depth and clarity in your photo. Bright points of light or specular highlights in the background will blur into beautiful spots of light, sometimes referred to as "bokeh". These spots of light are the exact shape of the aperture in your lens, so those lenses with more aperture blades tend to have a rounder bokeh. Sunlight shining through leaves or refracting in water drops can create intense bokeh, adding interest to your image. Make sure whichever background you find works with your subject to complement it, not compete with it.

PRACTICE & PATIENCE

The keys to macro photography are practice and patience. If you're like me, you won't have a hard time losing yourself in the macro world for hours at a time. Shooting macro takes immense concentration. Time seems to pass by very quickly. I often spend hours exploring through my lens without even planning to. When I finally do look up and return to the human scale, I feel a kind of culture shock, as though I've been far away.

If you feel the need to travel and explore new and exciting places, grab your camera and head for your backyard. You won't be disappointed. DP

DAMON CLARKE, *a macro photographic artist and instructor living in Ontario, Canada, is recognized internationally for his macro artwork, which is on display in private, corporate and hospitality collections throughout North America, Europe and Australia. He has specialized in macro photography for 15 years and is the owner of* ***MacroPhotography.com.***

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OPTICS FOR MACRO

THREE WAYS TO GET CLOSER TO YOUR SUBJECT | BY MIKE STENSVOLD

Want to try exploring the miniature worlds accessible through close-up photography? There are options for every budget, from premium lenses specially designed for macro work, to relatively inexpensive extension tubes and close-up lenses, or "diopters", that resemble optical filters and attach to the front of your lens. Here are the basics to know about each option.

MACRO LENSES

A true macro lens can focus close enough to produce a 1:1 (life-size) magnification at the image plane (whether film or digital), meaning that if the subject—say, a coin—is one inch in diameter, at 1:1 magnification, it will be one inch in diameter at the image plane. Thus, with larger-sensor cameras, the subject will take up a smaller part of the frame than with smaller-sensor cameras, but the subject itself will always be life-size.

Macro lenses are optimized for close shooting distances, but that doesn't mean they're not useful for other types of photography, too. For example, the Tamron SP 90mm ƒ/2.8 Di VC USD 1:1 is an ideal focal length for portraits, in addition to being a versatile macro focal length.

Macro lenses come in several focal-length ranges: "normal" (50mm or so on a full-frame camera), "short tele" (100mm or so) and "telephoto" (180-200mm). Though all will focus down to 1:1, the main benefit of longer lenses is that they do it from farther away, giving you more space between camera and subject, and more room to position your lighting.



TAMRON's SP 90MM ƒ/2.8 Di VC USD 1:1 features Vibration Compensation for steadying handheld exposures—critical for close-up work when a tripod isn't practical.



KENKO TELEPLUS DG AUTO EXTENSION TUBE SET for Canon, Nikon and Sony Alpha (A) mounts.

EXTENSION TUBES

You can also obtain 1:1 (and greater) magnification using extension tubes. These are essentially light-tight spacers that mount between camera body and lens. The resulting extension means the lens can focus much closer than it normally would, but note that the lens cannot focus out to infinity with the extension tube attached.

Extension tubes cost much less than macro lenses, and work with any lens. When the length of the extension tube equals the focal length of the lens, the resulting magnification is 1:1. If the tube is longer than the lens focal length, the magnification increases. The main drawback is that they "eat light"—at 1:1 magnification, an extension tube costs you two stops of light.



CANON's DOUBLE-ELEMENT 500D is a premium close-up lens, and is designed for use with lenses of focal lengths from 70mm to 300mm.

CLOSE-UP LENS

If you want to experiment with close-up photography but aren't ready to invest in a true macro lens, these screw-in lenses, which look a lot like an optical filter, are the least expensive alternative. Remember, though, that whenever you attach any optical element or filter to your lens, you're potentially degrading image quality. Inexpensive lenses may also produce large areas of blur when shooting at fast apertures, so you'll get better results when stopped down to apertures around ƒ/16 or smaller.

There are two types of close-up lens filters: single element and double element. The single-element design is less expensive, but also more prone to loss of sharpness and color infidelity. In a double-element design, the second element is used to correct the aberrations of the first element, producing better image quality, but also making these considerably more expensive than the single-element variety.

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YN600EX-RT

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- Fully Compatible with YONGNUO YN-E3-RT,Canon's 600EX-RT/ST -E3-RT Wireless Signal

One YN600EX-RT can be used as master unit to trigger YONGNUO YN600EX-RT,Canon's 600EX-RT,and live display the flash groupings of slave unit and recycling information; One YN600EX-RT can]respectively receive the wireless signal of master unit YN600EX-RT、YN-E3-RT、Canon's 600EX-RT/ST-E3-RT, realizing remote TTL、M and Gr flash.

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- Supports Wireless Optical Slave function

The YN600EX-RT supports YONGNUO, Canon's and Nikon's wireless optical master signal, supports S1 and S2 pre flash cancel mode.

- Support Auto/Manual Zooming

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In the pool you have more control and can build your own set, including your background. I often use black vinyl (vinyl is easy to sink in the pool and it doesn't wrinkle much) for dramatic, high-impact imagery.



A new location can spark creativity. When I started photographing in the mangroves, I immediately thought of Neverland, Peter Pan, and the Lost Boys' adventures on the island where they never grow up.

Below The Surface

EXPLORE THE CREATIVE POSSIBILITIES OF UNDERWATER PHOTOGRAPHY

TEXT & PHOTOGRAPHY BY ELENA KALIS

Ten years ago, seeking to extend my traditional art background, I picked up a camera and an underwater housing and started "playing in my backyard" with my young daughter as my model. I was also lucky to live nearby clear, warm water, and soon became fascinated by what I found. The spectacular effect of sunlight through water, the dreamlike weightlessness, and the deep emotional attraction of the water itself inspired me to experiment more.

ELENA KALIS' ESSENTIAL GEAR

WATERPROOF CAMERA OR CAMERA WITH UNDERWATER HOUSING. From waterproof compact cameras to DSLRs that require an underwater housing, there are options for every budget. Professional housings cost more—and often many times more—than a camera. If you're going to make an investment in a professional system, check out the housings available before buying your camera or lens as not all models are supported.

WIDE-ANGLE LENS. Getting as close as you can to your subject is very important in underwater photography. Since water is much denser than air, the more water between the camera and subject, the greater the loss of color and contrast, especially if the water is not at its clearest. Photographing people with a fisheye lens can be tricky and lead to distortions—I find that focal lengths from about 17mm to 28mm (35mm equivalent) get the best results. The relatively low levels of light underwater mean that a fast (large maximum aperture) lens will give you more opportunity. The Tokina AF 10-17mm ƒ/3.5-4.5 AT-X 107 DX lens is a popular choice for underwater photography.

DOME PORTS AND LENS EXTENSIONS. These are sold separately from housings and are customized for the length of your lens. Large dome ports will provide a sharper image, especially in the corners, for wide-angle lenses. They are also used to capture those images where both underwater and above water are shown in one frame.

UNDERWATER COLOR CORRECTION FILTERS FOR YOUR LENS OR PORT. To compensate for the excess of blue light underwater, and to draw out the red light that is easily lost, there are red, magenta, yellow and orange filters.

STROBES OR LED LIGHTS. On sunny days in clear shallow water, you probably will not need to use an extra light source, but red colors are absorbed very quickly and so artificial lighting can be useful if you have to go deeper. When shooting against the light in shallow water, artificial light can help fill unwanted shadows.



When you can't feel the effect of gravity, who is to say what is up and what is down?

Non-traditional underwater photography has grown rapidly and is gaining a wide audience, especially through social media. The unique characteristics of the underwater environment offer truly new and exciting possibilities for imaginative images. A little knowledge can open up this world to anyone who wishes to experience it.

LIGHTING

Almost all of my images in the ocean are shot with ambient light. When the sun is high, the surface of the water can create crisp, dramatic patterns on your subject. When the sun is low, and the light softer, the effect can be dreamy. In all cases, light behaves quite differently in water, and although you have much less control over the scene, amazing and unpredictable effects are constant. Bursts of light and reflections flood the scene as the water surface is disturbed by wind or waves, or the angle of the sun changes. The magic is everywhere—you just have to catch it.

In the pool, you have more control over the lighting, and can place lights out of the water (please exercise caution when handling electrical equipment near water), where you can use many traditional lighting accessories.

COMPOSITION

Shooting through a mask and a small viewfinder while moving around your subject in an environment where you are sinking or rising, and holding your breath, is a challenge. But the reward of being able to compose your images from literally any angle opens up new possibilities, and the weightlessness of your subject provides equally new opportunities that are not available above water. Combine that with the "unreal" lighting effects underwater, and you have a totally different world to stage whatever you can imagine.

I do most of my photography in shallow water where there is enough sunlight, the natural colors are not too faded, and I don't need scuba gear. Sometimes I use a diving regulator with a long hose to a bottle of compressed air in the boat or floating on the surface above me.



Photographing children is challenging as they will only cooperate as long as they are interested. Playing in the water is what most children enjoy; using toys and props makes it all the more exciting.

PROPS AND ACCESSORIES

I have often used props underwater, especially when photographing children in the pool, such as balloons and inflatable toys filled with water, mirrors, frames, flowers and more. There is virtually no limit to the props with which you can experiment. If you can sink it, you can use it as a part of your composition.

Using a model is not so easy. Few people are comfortable enough underwater to open their eyes and relax their face and body for the required length of time to capture the images. It is physically very demanding, and I have been lucky to have my daughter, who grew up a mermaid. Having an emotional connection to your model will also result in a better image, something to which a viewer will more easily relate.

WORKING WITH MODELS

Planning ahead and discussing your ideas with your model beforehand is very important—communication is difficult underwater. At the same time, be prepared to adapt your plan as you have limited control over your underwater location, and unpredictable things happen. Experimenting, and allowing for spontaneity, is what results in fresh and exciting images.

When photographing a model in the ocean, be aware of costumes that can restrict movement and get very heavy. Having a helper with fins and mask in the water is a good idea.

POSTPROCESSING

Postprocessing is a very important part of underwater photography. All underwater images will benefit from enhancements such as lens correction and adjustments to contrast, clarity, vibrance and color balance. Learning your way around Photoshop and Lightroom is a must if you want your images to stand out. I recommend capturing your images in RAW format for best results in postprocessing.

Underwater photography in open water is challenging, so practice with your camera and equipment. Work on your swimming and diving skills, take a lot of images, and freely experiment with light, settings, and compositions.

A certain amount of technical competence is required, but in the end it is not the technology or the technique that is going to create the truly memorable, emotionally charged image. So open your eyes and your mind to where your underwater photographic experiences lead you, and your passion will be reflected in your work. DP

TIPS FOR WORKING WITH HOUSINGS

- Take your time to carefully assemble your equipment! This is very important, since most instances of leakage occur due to human error. Do it in a dry environment with good lighting. Don't open your housing outside, especially in a humid environment. Pay special attention to the O-ring, and check if there are any hairs, sand particles, or damage.
- Connect all the parts and test shoot at home before going out.
- Submerge your system (preferably in fresh water), and watch for bubbles, indicating a problem.
- Never jump in the water holding your camera rig. Get in the water first and let someone hand it to you.
- After use, submerge your system in clean, fresh water for a few minutes, turning all movable parts. Dry with a clean towel.

ELENA KALIS' *work has been featured in numerous publications and gallery exhibitions. She is also a Fine Arts Underwater Photography Ambassador for Ikelite. See more of her work at* ***www.elenakalisphoto.com.***

UNDERWATER HOUSINGS

A RANGE OF OPTIONS FOR KEEPING YOUR GEAR DRY | BY MIKE STENSVOLD

Underwater photography opens up a whole new world of photo opportunities, but requires some means of protecting your camera from the water. There are compact cameras that are designed to be used underwater, and for casual shooting or just trying it out, these are excellent, but they have small sensors and are limited in how deep they can go.

Several companies offer waterproof housings for DSLRs and mirrorless cameras, and these are a better option for serious underwater photography. With these, you can safely use your familiar big-sensor camera underwater. Housings range from rugged plastic baggie-type designs to professional hard housings. The more costly ones provide sophisticated control and flash capabilities, and can withstand greater depths. Here are some examples of what's available.



IKELITE

A longtime supplier of underwater photo gear (including lighting), Ikelite offers housings made of special polycarbonate blends that are strong, lightweight and corrosion-resistant. Clear construction lets you see that the housing is watertight and dry before you enter the water. The units are built by hand and individually tested for fit, function and waterproof integrity. Housings are available for a wide range of popular DSLRs, mirrorless cameras and compact cameras. Note that each housing requires a waterproof lens port, which is sold separately. Large-diameter dome ports provide good optical performance in normal underwater photography, while flat ports are best for underwater macro work. Contact: Ikelite, www.ikelite.com.



SEA & SEA

Sea & Sea offers underwater cameras and lighting, as well as corrosion-resistant aluminum-alloy MDX housings for Canon, Nikon and Sony DSLRs and mirrorless cameras, the RDX-100D polycarbonate housing for Canon's compact EOS SLI DSLR, as well as housings for compact digital cameras. MDX housings have dual handles and can be used to depths of 100m/330 feet, while RDX housings can withstand depths to 60m/200 feet. Contact: Sea & Sea, seaandsea.com.



EWA-MARINE

ewa-marine has long been a reliable source of flexible plastic housings for a wide range of popular cameras. The housings feature double-laminated PVC envelopes and hardened optical glass lens ports. The low-cost SplashiX series units are for compact cameras, and can be used to depths of 6m/20 feet. The U-A and U-B housings are designed for autofocus SLRs (small and large), and can be used to depths of 60 to 150 feet, depending on the model. U-F housings were designed for manual-focus, manual-advance cameras, and allow these activities, down to 30 feet. Contact: ewa-marine, www.ewa-marine.com.



CATALYST

Catalyst's Case for iPhone 6 provides dust, water (to depths of 5m/16.4 feet) and drop (from up to 2m/6.6 feet) protection for the iPhone 6. A hard-coated optical lens provides clear photos (but note that the touch-screen isn't effective underwater, so you have to use the volume button to trip the shutter). The case follows the iPhone's stylish curves and allows access to all iPhone 6 functions. Contact: Catalyst, www.catalystlifestyle.com.



LIFEPROOF

LifeProof offers cases for a wide range of devices, including iPhones, iPads, and Samsung and Motorola smartphones. The NUUD case is waterproof (to 2m/6.6 feet for one hour), dust- and dirtproof, snowproof, and shockproof (to drops of 2m/6.6 feet). The screenless design lets you touch the actual Retina display, while anti-reflective optical glass provides distortion-free photography. Contact: LifeProof, shop.lifeproof.com.

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ABOVE AND OPPOSITE: This image of model Nanako Hawley was shot on location near Red Rock Canyon for Profoto and Dream Shoot Rentals. Using the new Profoto B2 Location Kit and a 46-inch Photek Softlighter, I created a soft balanced light that made the image pop with the beautiful background.



Here's an example of the dramatically different looks you can achieve by varying your shutter speed to control ambient light. All three images were shot at an aperture of ƒ/4 and ISO 400. The image at left was taken at a slower shutter speed of 1/10; the middle, at a speed of 1/20; and the left, at 1/60.



THE ONE-LIGHT PORTRAIT

SIMPLE AND ELEGANT, LESS CAN BE VERY MUCH MORE

TEXT & PHOTOGRAPHY BY CLAY COOK

OVER THE COURSE OF A 40-YEAR CAREER, Annie Leibovitz created some of the most iconic and unique editorial portraiture, recognized all over the world. Being a self-taught photographer, I looked to her work time and time again for inspiration and motivation. I scoured the Internet for information on her lighting setups, equipment and methodology, but the more I dove in, the less concerned I became about equipment and the more I felt the need to simplify my style.

I began to focus more on subject matter itself and what it means to the viewer rather than the technicalities of it all. I began to see "lighting" as simply "light", which meant bringing a natural feel to my lighting and imagery. Around that same time I introduced a set of images called the "Oliphant Portrait Series". The series focused on a group of my colleagues that have been inspirational to my career, many of them being photographers, designers and artists. The images were all captured in front of a custom-painted 9x12-foot canvas from Sarah Oliphant of Oliphant Studios, hence the title of the series. The images were a smash hit and I received a lot of great feedback, but the biggest question of all was, "How did you light that?"



LEFT AND BELOW: This photo of Steve Wilson, owner of 2IC Hotels and Woodland Farm, was taken for The Voice Of Louisville and was an extreme challenge that required a lot of planning and technical execution. Steve is an avid bison lover and we wanted to portray one of his male bison as if it was a pet. Unfortunately, bison can be very dangerous, so the shot had to be composited from two separate images. Using one light and a Photek Softlighter, I created a soft light on Steve's face, and did the same for the bison.

ONE LIGHT IS REALLY ALL YOU NEED

During my research, I learned that when Leibovitz started shooting portrait assignments, she would only bring one light and an umbrella. That is very similar to the setup I use every day: one light and one umbrella. I prefer a solid white umbrella in which the light flashes into the umbrella and then spills out through the diffuser covering the umbrella, such as a 46-inch Photek Softlighter II or a 41-inch Profoto Shallow White Medium Umbrella with Diffusion.

If you are ever assigned a group portrait, try using an even larger diffuser—the larger the group, the larger the light source. Don't feel the need to add more light or a stronger light, simply add a bigger diffuser.

GET CLOSE

The closer the light source is to a subject, the softer the light will fall on the face. The distance from the sun to the earth is about 93 million miles, hence why the sun on a bright day creates such hard shadows. Don't be afraid to place the light close to your subject's face. On many occasions, I have had the light less than a foot from my subject's cheek, and if you were to look at my RAW images, the modifier can be clearly seen in the frame. With a quick cloning session in Photoshop, any and all such distractions can be removed.

FEATHER THE LIGHT

The first mistake a photographer can make when staging a natural portrait is pointing the light directly at the subject. It's important to have the light thrown over the subject and in front of the subject so the light feathers on the face and



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ABOVE AND RIGHT: This is model Sophia DeSimone, photographed for Heyman Talent Agency. I used one light with a 46-inch Photek Softlighter, feathered to create a moody ambient look on two custom-painted Oliphant canvases.

provides more wrap around the cheekbone. If you're too far to the side of the subject you'll end up with a split-light and will create strange shadows. If you're too far forward, the light will be too flat. Feel it out—good lighting isn't achieved with technicalities, it's created with intuition and mood.

BIG AND SOFT DOUBLE DIFFUSION

If you place a subject near a window, the light would look natural and wrap around the subject's face. Take that same theory and apply it to one strobe. The modification that lies in between the strobe and your subject's face is up to you, but I recommend the 46-inch Photek Softlighter II. If you want to go even softer to mimic that nice window light, place a 6x6-foot scrim between the Photek Softlighter II and your subject. Leave about two to three feet in between the light and the scrim, and then place the subject about four feet away from the scrim. What you'll notice is a soft, even light that still retains a hint of drama. I use this method for fill light quite often.

UNDEREXPOSE

It's important to get it right in-camera, but there is also a smart way to set your image up for postprocessing. In the digital age, we can easily increase exposure in post, but we can't take away blown-out highlights. Underexpose your image a stop or two and you'll not only save yourself some processing headaches, but you may just see a more dramatic image overall. Never be afraid to go to dark with those shadows.

"UP" THE AMBIENT LIGHT

Using a slow shutter speed in dark situations is an important facet of my work, and I know Leibovitz has always incorporated ambient light for more natural and realistic portraiture. Shutter speed only controls ambient light, while aperture controls artificial light (and ambient, to a degree). Therefore, you have the ability to bring up the exposure of the ambient light using shutter speed without altering the flash effect. "Up" the ambient light, then create drama with the artificial light source. You want the strobe to mimic the look of natural light. In order to keep the image sharp while using a slow shutter speed, use a sturdy tripod and make sure the subject remains somewhat still.

DON'T FORGET THE FILL

You just never know, everything might be where it should be and the only thing you're forgetting is a simple chest-level fill from a reflector. It can provide an amazing pop and some beautiful catchlights. By setting a softly modified light source or a piece of white foam core next to those strong shadows, you can reduce the contrast and provide more playing room in postprocessing. Many photographers use fill under the chest for beauty or fill opposite of the keylight for less shadow density. Although this isn't a pivotal point of light, it can definitely help out when you need it most.

The next time you have an open studio or a bored friend, grab a strobe or a speedlight and a couple of soft modifiers. Using these tips, explore the depth and dimension of your lighting. Simplify things, connect with your subject and you'll see that less is very much more. That is my one light challenge to you. DP



CLAY COOK *began his creative career in the music industry and has built a name as an award-winning, internationally published photographer and filmmaker, specializing in fashion, editorial and advertising photography. See more of his work at* ***www.claycookphotography.com.***

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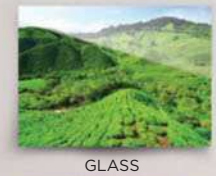
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METAL

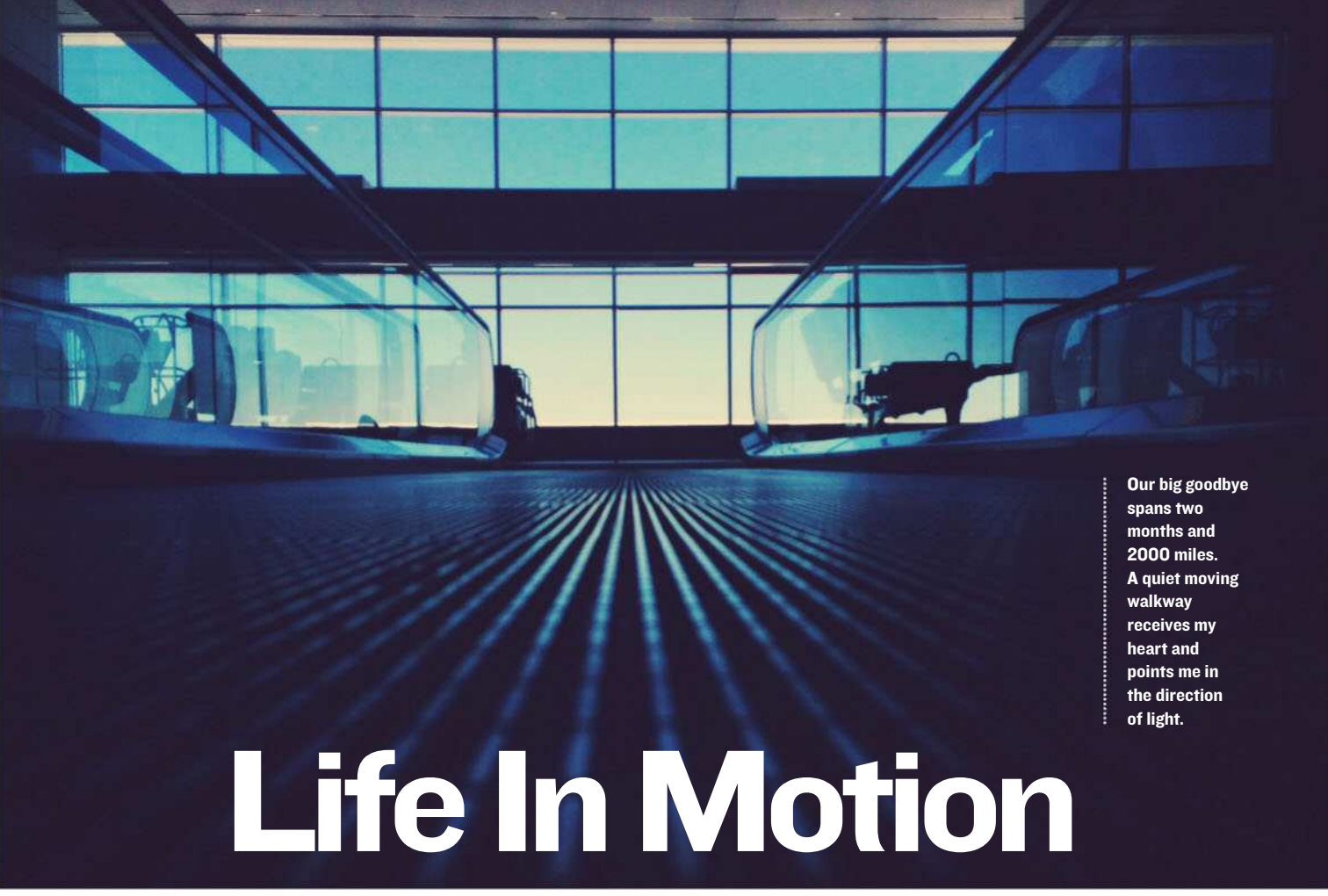
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Our big goodbye spans two months and 2000 miles. A quiet moving walkway receives my heart and points me in the direction of light.

Life In Motion

SOME OF THE BEST PHOTO OPPORTUNITIES AREN'T FOUND AT YOUR DESTINATION, BUT ON THE WAY GETTING THERE

TEXT & PHOTOGRAPHY BY MEREDITH WINN

Welcome to my playground: the space between home and destination. We live in a busy world. Fast-paced and often hurried, we are always in the state of getting from point A to point B. Recreation, work, or everyday life—this is a life in motion.

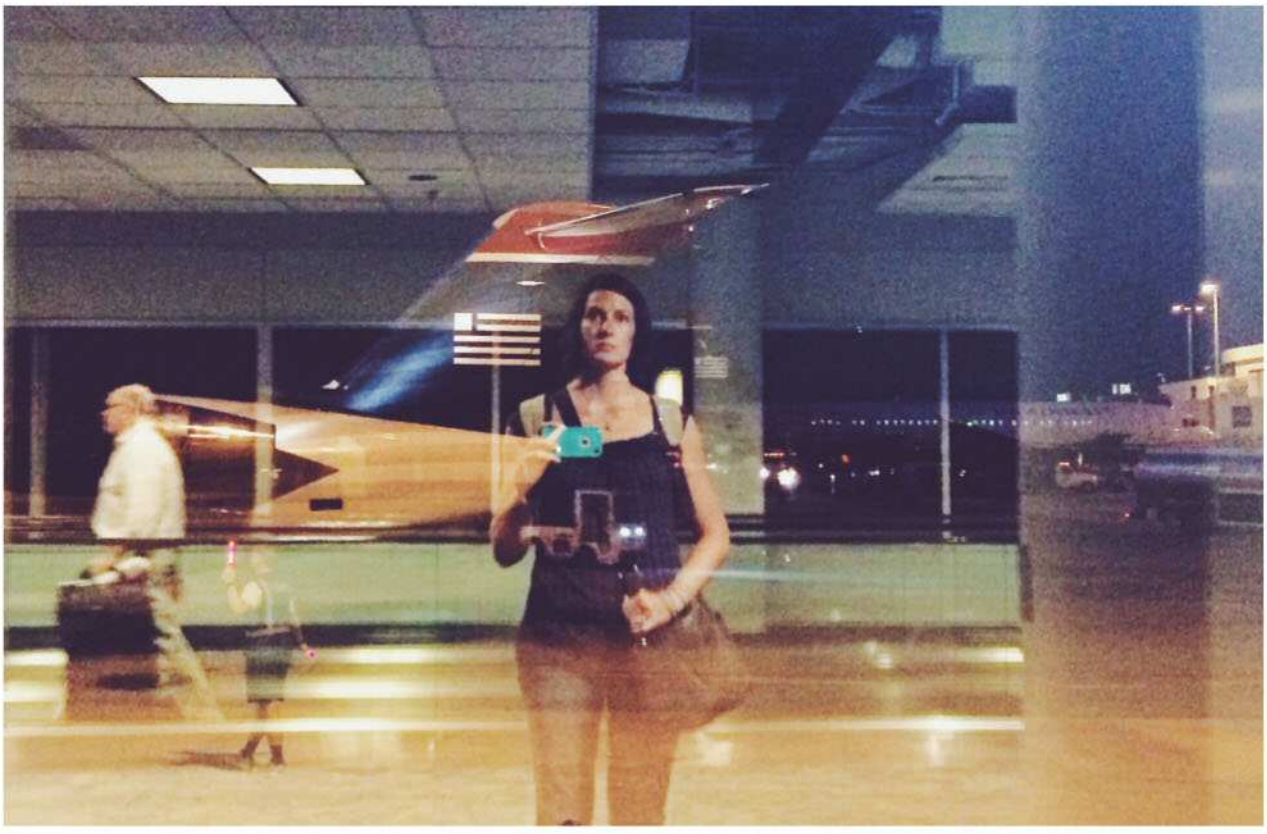
Often, while the big camera is packed away and airports or train stations are navigated, photographic moments can slip past us. Whether we are caught in traffic or traveling home down a desolate road in winter, these are the moments that make up our daily lives. How much of our time is spent waiting in lines? How many hours are consumed in the space between here and there while on a business flight? How many years of our lives spent devoted to shuffling children to and from the experiences that will grow them into amazing adults?

> "I travel not to go anywhere, but to go. I travel for travel's sake. The great affair is to move."
>
> –ROBERT LOUIS STEVENSON

My life is busy, and I refuse to focus solely on the destination shots that come from the long-awaited once-a-year family vacation. Yes, time is relaxed and life feels most photogenic while on vacation—but my life is now, and it is zipping past with the blur of everyday activities and work.

As photographers, we shouldn't dismiss the time we spend between destinations. Instead, use this time to create a body of work that documents your journey. These common travel moments are the images I gravitate towards. They are no less quality than the prime destinations photographed from coveted hotspot locations. My everyday travel images are spontaneous (sometimes shot from the hip) moments documented typically by mobile phone. They are neither destination nor vacation shots, but they are very much a part of my life. Few will share your exact path, so start documenting it!

My father traveled a lot when I was a child. It felt as though I grew up in the Newark International Airport. I honestly loved every minute of the weekly trips to such a crowded and busy environment. There was a story everywhere



ABOVE: After an especially long day of travel and delays, I catch a glimpse of myself surrounded by chaos and emotion, searching for my center.

RIGHT: A day on the water is a day well spent. Boating season in Maine opens up portals to other worlds.

BELOW: My silhouetted inner child as seen on a family bike ride. Through puddles and sunshine, riding bikes with my boys always reminds me that childhood is fleeting.





I looked! Thousands of people walked with intention, all on their way to or from somewhere. From a young age, travel began flowing in my veins.

In my adult life, I've been fortunate to spend many years taking road trips to (sometimes) grand destinations across the country, and I've got the images for show and tell. Like many of you, I've traveled for business and I've traveled for pleasure. These days, I always carry my smartphone in my back pocket, because I never know when the perfect scene will present itself. It's true: the best camera is the one you have with you, not the one that is packed carefully with the rest of your gear in the trunk of your car or the overhead storage of your red-eye flight.



The straight and narrow. After the snow and before the plow, New England roads in winter make the world feel that much smaller.

For me, it's not about the destination, it's about the journey. Even a trip into town to buy groceries can be a photographic opportunity when viewed from this perspective. The depth of darkness on a back road in Maine proves to be an intriguing story. A boat ride to my favorite island off the coast of Maine becomes abstract art. My summer solstice bike rides trigger memories of long ago childhood with the playfulness of shadows. The images I'm drawn to again and again are born right here in the space between home and destination.

If our days keep propelling us forward with great speed, then life is the highway, an airplane window seat or a spot along the road not far from home. It's my personal challenge to pass the time that goes with layovers, delays or traffic. I fill this space with mobile photography. I now look forward to the different photographic opportunities that arrive, and I let go of the annoyance or mental fatigue that often comes from a big travel day.

A moment on the moving sidewalk in the Denver International Airport documents a milestone goodbye. This image is worth more to me than the sunset I viewed later that evening in the Rocky Mountains. By bike and by boat, I document the journey because, for me, the journey is where my strongest memories are stored. I enjoy the freedom of the journey, because it provides photographic moments to appear serendipitously wherever I happen to find myself. My favorite moments reside between point A and point B.

This past summer, the whirlwind of travel had me seeing five airports in two days. At some point in the late night of flight delays and a heavy homesick heart, someone asked me, "Where are you from?" And for a moment I drew a complete blank. Where am I from? I am from everywhere. And I document it every chance I get. DP



MEREDITH WINN *weaves stories from truth and optical illusions from images. Balancing the digital world with slow photography, she is happiest in her darkroom creating tintypes from silver and light. Meredith lives off-grid in a yurt in the foothills of western Maine. Visit* ***www.meredithwinn.com*** *and* ***@camerashymomma*** *on Instagram.*

USING MOBILE PHOTOGRAPHY TO DOCUMENT YOUR LIFE IN MOTION

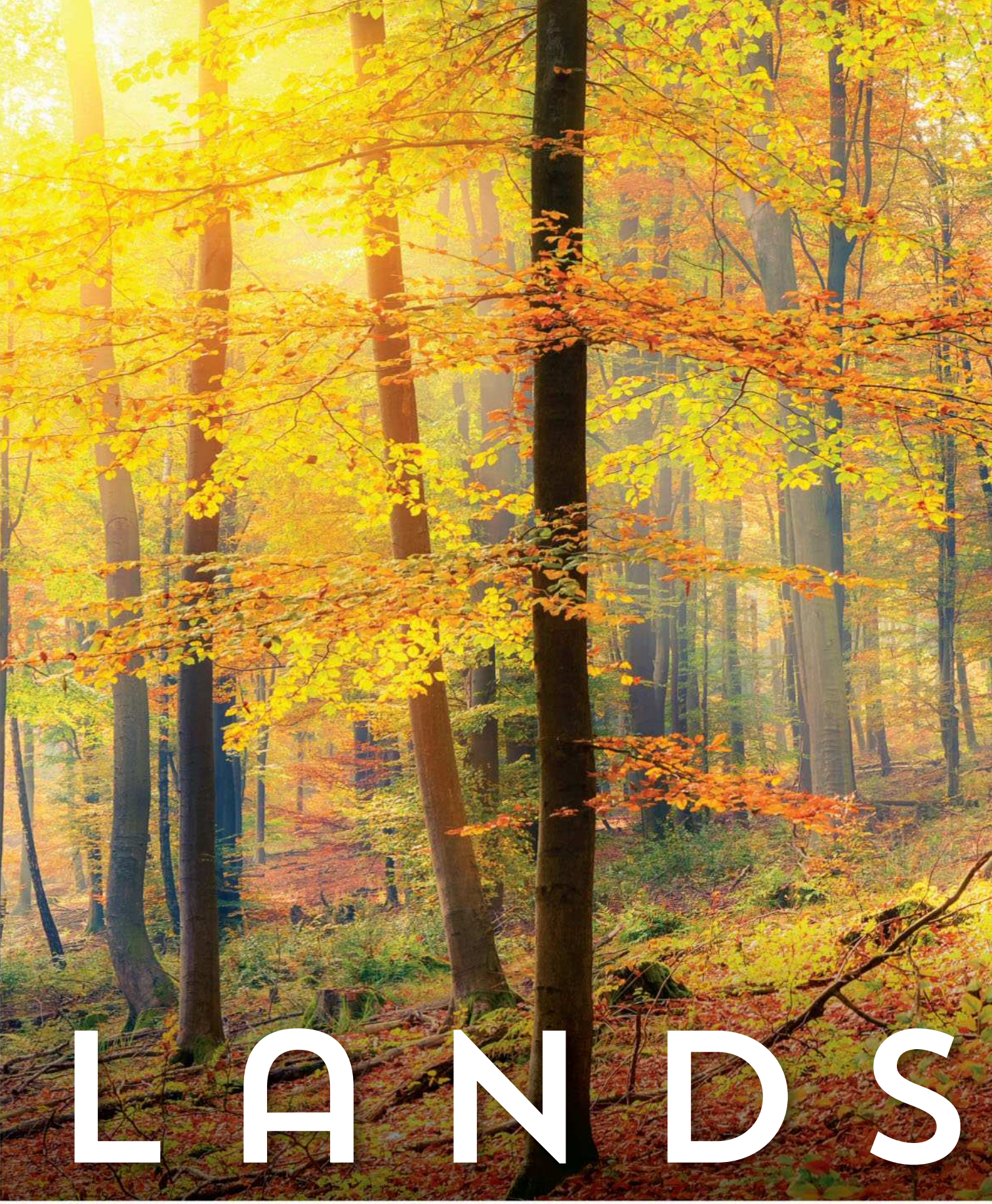
1. Carry your smartphone in a pocket on your body, not in a purse or carry-on bag. This will make opportunities available to you quickly, with the press of a button.
2. Practice thinking like a street photographer. If all the world is a stage, then everything can be seen as a photographic story while traveling.
3. Look for interesting ways to document your location as seen through your travels. Instead of documenting the car or the mud season of New England, change your perspective and picture the tread of muddy tires instead. Life is interesting! Shoot it this way.
4. Instead of the "obligatory wing shot" from your flight back home, create a window of the world. Or try for a bird's-eye view of the landscape, typically pictured close to takeoff or landing.
5. Look for shadows, reflections, subtle details or negative space to fill your frame. The many layers revealed within a single reflection will not only show location but will convey emotion, as well.
6. Practice extreme caution if you are documenting a road trip. My shots of life on the road are taken through the windshield either from the passenger seat or from a completely stopped car. Safety first!

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ALL ABOUT HISTOGRAMS

HOW TO READ A HISTOGRAM FOR BETTER EXPOSURES AND POST-PRODUCTION EFFICIENCY

BY WILLIAM SAWALICH



What exactly is a histogram? In general, it's a way to visualize exposure via a bar graph that displays the luminance values of every pixel in a digital image file. From left to right across the X axis of the graph, pixel brightness values from 0 to 255 are displayed. The 0 value is on the far left (pure black) and the 255 value is on the far right (pure white). The Y axis of the histogram is a relative measurement of the quantity of pixels of a particular luminance in the scene. The tallest spikes on the histogram reveal the predominant luminance of the pixels in the image.

READING A HISTOGRAM

Many cameras can display histograms on their LCDs, providing useful information about exposure. Histograms are also particularly helpful in postprocessing, especially of RAW files, so they show up in almost all photo editing software—more on that later.

Wherever you're reading a histogram, you interpret the data the same way: the higher a peak, the more pixels of a particular brightness there are.

A single peak near the center of the histogram tells you that the majority of the pixels are middle tones, and the image is likely flat because it's missing highlights and shadows.

A peak to the right side of the histogram tells you there are many bright pixels, while a peak at the left represents many dark pixels.

LEFT: The middle image shows a gradient from pure black to pure white, and its corresponding histogram, which shows a relatively even distribution of tones from light to dark. The top image is a gradient from pure white to middle gray, and the corresponding histogram shows values only on the right side of the graph. The bottom image is a gradient from pure black to middle gray, and its histogram is the mirror image of the top one.

A peak scrunched up flat against either end of the histogram means clipping has occurred. In practice, that means a spike all the way at the left edge of the graph represents underexposure, with too many pixels of pure black values. The reverse is true with a peak all the way to the right side of the graph. This represents overexposure—too many pure white highlights—and data thrown out at the white end of the spectrum.

The more you familiarize yourself with histograms, you'll begin to correlate particular scenes with various histogram shapes. A normally exposed portrait, for instance, will likely have a few spikes with the majority of the bumps on the graph distributed well within the middle of the X axis' spectrum. Whatever you shoot, you can learn to associate particular histogram shapes with the tonal values you want in your pictures. That's the beauty of working with histograms: the more you read them, the more they tell you.



In Lightroom, you can check your images for blown-out highlights (or blocked-up shadows) by clicking on the "Show Highlight Clipping" triangle in the top-right corner of the histogram. The clipped highlights appear as red patches, here shown on the subject's overexposed shoulders.

WORKING WITH HISTOGRAMS IN-CAMERA

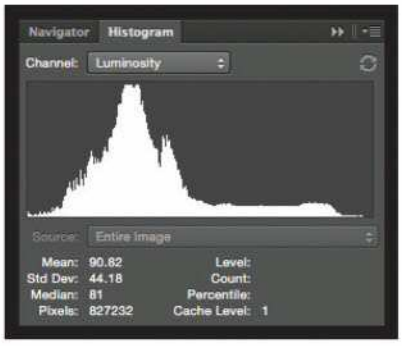
Many cameras can display a histogram overlay on or adjacent to an image review, so you can take a picture and check the histogram in order to adjust your exposure based on what you're seeing on the histogram.

Let's say you're making a closeup portrait against a dark blue background. You know you should see a peak on the graph near the middle of the X axis (slightly to the left for darker skin, or to the right for lighter skin), as well as a peak near—but not completely—to the left edge of the graph, representing the dark blue tones of the background. If the left peak is at the edge of the frame, it's rendering the dark blue pixels as pure black. That's too dark, so you must be underexposed. This is invaluable information, especially since it can be difficult to gauge image quality based on the LCD review image.

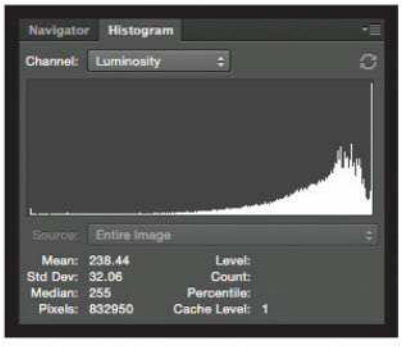
There's an exposure technique that gets its name from the shape of a particular kind of histogram. With more



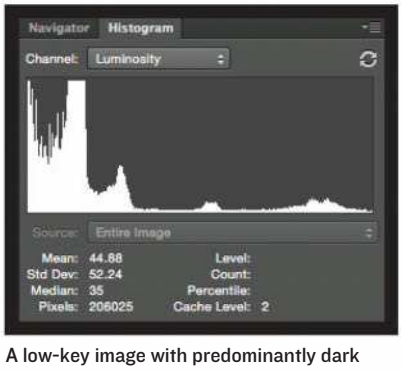
A high-key portrait with many light tones and highlights produces a histogram that is heavily weighted to the right. This Lightroom histogram also shows the values of each color channel behind the white portion of the graph, which represents the overall luminance.



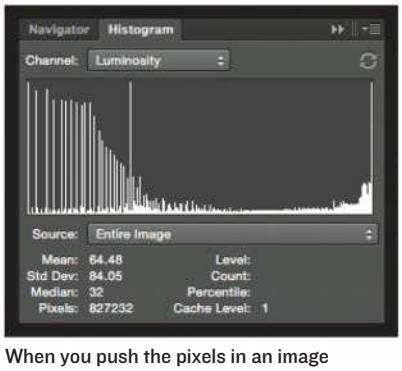
A typical image—say, a portrait or a landscape—will generally produce a histogram with the peak in the middle of the spectrum, representing the predominance of middle tones typical in most normally exposed images.



A high-key image, one with predominantly white and bright tones, produces a histogram with a peak weighted toward the right side of the graph.



A low-key image with predominantly dark tones and shadows produces a histogram with a peak on the left side of the graph.



When you push the pixels in an image too far, you run the risk of losing image-forming information.

peaks toward the right side of the graph, more of the pixels are lighter values. And because a brighter pixel contains more image-forming data than a darker pixel, some folks suggest this "Expose To The Right" method as a way of maximizing detail in an image file. This approach does raise the risk of overexposing too much and blowing out highlight detail. In practice, this means if you're shooting a high-key scene (a white dog wearing a white hat in a white room, for instance) you may actually want to expose to the left to prevent overexposure and losing valuable data in your bright, high-key scene.

USING HISTOGRAMS IN LIGHTROOM

When processing RAW files in Lightroom, the histogram not only provides valuable exposure information but it can actually be manipulated to alter the tonal values of a scene. Move your mouse over the histogram (found in the Develop module, in the top-right corner of the screen) and you're likely to notice it reacts to the mouse, signifying which tones you're hovering over: from Blacks through Shadows, to "Exposure" in the middle of the graph, then on to Highlights and Whites. Hover your mouse over the middle, and click and drag the histogram to the right. You'll not only see the values in the histogram change, you'll see the impact on the picture itself. It's getting lighter, because you are making the same adjustment to the RAW image file as you would by moving the Exposure slider in the Develop module. The same holds true for clicking and dragging to adjust Blacks, Shadows, Highlights or Whites.

That's not all Lightroom's Histogram has to offer. In the upper left- and right-hand corners of the histogram you'll see two triangles.

If the triangles are dark gray, no values are being clipped.

If the triangles are a specific color—like red, blue or green—they're indicating which RGB channel is losing data.

If the triangles are bright white, you're losing image-forming detail everywhere. Click on the white triangle on the left side of the histogram and it will



ABOVE: The white triangle in the top right of the histogram shows that highlights are clipping. The gray triangle in the top-left corner shows no clipping is occurring in the shadows. If they were clipped, the triangle would illuminate red, green or blue to correspond to the channel that is blocked up.

enable clipping indicators, which appear as bright blue pixels where the darkest shadows have become pure black. Click on the white triangle in the top right of the histogram and bright red pixels will signal every place where highlight detail has been blown out.

You can also Option-click in the histogram to see the image turn all-white with small areas of black clipping indicated, or it will turn all-black with small areas of white clipping indicated—each based on the area of the histogram you've clicked. It's another way to accurately visualize where and how your exposure and processing choices may be eliminating valuable image-forming detail.

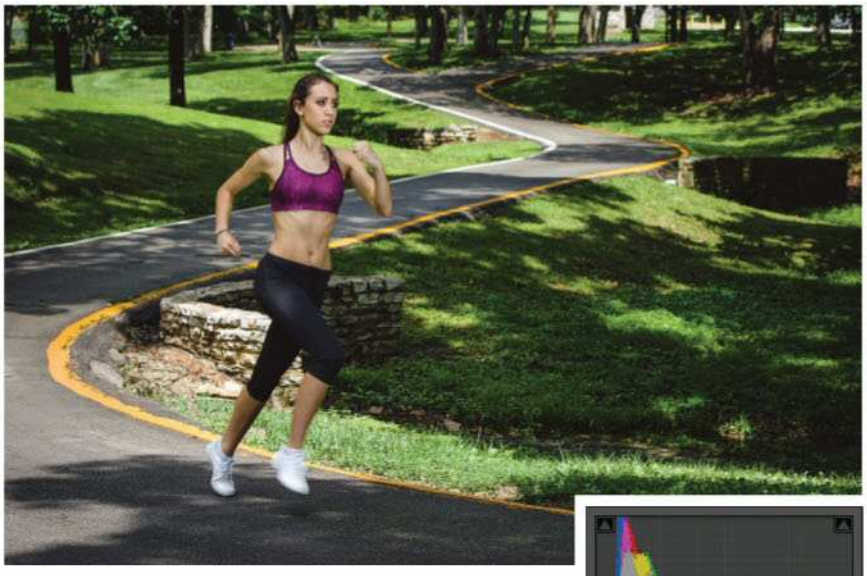
Many photographers use histograms to ensure there are pure white and pure black values in an image file in order to ensure a more pleasing contrast. Adjusting the blacks (by clicking and dragging either the left side of the histogram or the Blacks slider under the Basic heading of the Develop module) until that Clipping Indicator alerts is the perfect way to ensure pure black values, and the same

process works at the highlight end of the spectrum.

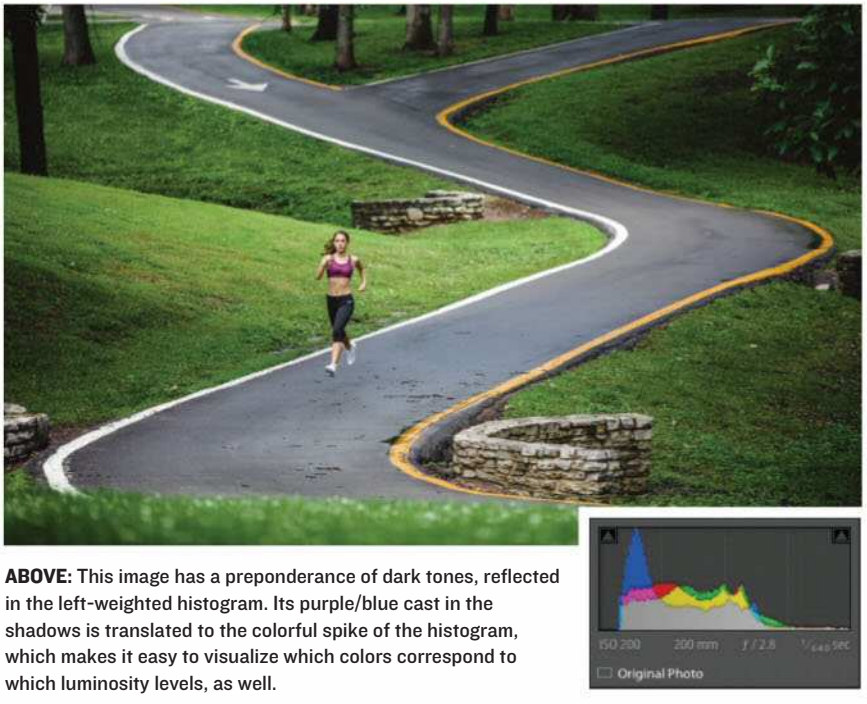
USING HISTOGRAMS IN PHOTOSHOP

In Photoshop's Window menu, click Histogram to show the Histogram palette, then click the menu icon in the top-right corner of that palette to open a drop-down menu that allows you to switch from the Compact View to the Expanded View, which simply makes the graph itself bigger, and easier to view, and also enables all sorts of statistical information such as pixel values and the percentage of a tone's allocation in a scene. You can also switch from RGB to individual color channels and to the Luminance itself. This is a great way to view exposure details, as well as specifics about the individual color channels that comprise an image.

To adjust tonal values in a Photoshop file, simply use Levels or Curves Adjustment Layers. The pixels themselves remain untouched, but the tonal adjustments are evident in the histogram. That histogram is also helpful for ensuring that you're not adjusting levels too far. This can be evidenced by a histogram full of single-pixel spikes and gaps. Such a "combed" histogram is indicative of detail loss that comes from altering pixels in a heavy-handed fashion. With the preview option selected in any adjustment you're making (levels, curves, brightness, etcetera), you'll see the original histogram, as well as the newly adjusted one. If you start seeing a combed histogram, consider backing off to a smaller adjustment in order to avoid throwing out too much image detail. DP



ABOVE: This image, which is full of mid- to dark tones, produces a histogram that is heavily weighted toward the left side of the graph. The gap between the peak and the left edge of the graph represents a maximum shadow density that is not pure black.



ABOVE: This image has a preponderance of dark tones, reflected in the left-weighted histogram. Its purple/blue cast in the shadows is translated to the colorful spike of the histogram, which makes it easy to visualize which colors correspond to which luminosity levels, as well.



ABOVE: This series of images shows pure black, pure white and middle gray, as well as light gray and dark gray, each corresponding to a single-pixel spike in the histogram. It's an easy way to visualize where on the histogram a particular luminosity will be found.

MASTER



THE METER

IMPROVE YOUR EXPOSURE ACCURACY WITH A HANDHELD LIGHT METER

TEXT & PHOTOGRAPHY BY WILLIAM SAWALICH

When the photography world made the switch from film to digital, one casualty of the conversion was the handheld light meter. Those LCDs on the backs of cameras made handheld meters (in the eyes of many, at least) obsolete. But in fact, there's almost as much reason to use a handheld meter today as there ever was. For exposure accuracy and for fine-tuning lighting, nothing beats the information offered by a handheld light meter.

There are two kinds of light meters: incident and reflective. The reflective kind, often known as spot meters, work much like your in-camera light meter to measure the amount of light reflecting off a subject. Spot meters are part of the reason why greats like Ansel Adams were able to craft such fine black-and-white images: They could target an element in a scene and know how it would render in the final print.

For instance, if a middle gray scene element is reading 1/60th at $f/8$, when you shoot at 1/60th at $f/8$, that middle gray subject will, in fact, look middle gray. But, if you meter a black subject under the same lighting, it will read more like 1/60th at $f/2.8$. Expose that way and you'll have a wild overexposure. That's because the incident meter is providing a reading for middle gray, and it's up to the photographer to calculate the appropriate exposure according to the tone of the subject. It's very precise, but it's a bit more complicated than working with a more common handheld meter, the incident meter.

An incident meter measures the amount of light falling on a scene. It doesn't matter whether you're looking at a gray scene or a black scene or a white scene, a scene that's frontlit, backlit or sidelit; as long as you aim the meter at the camera, the amount of light falling on it is measured accurately.

Because in-camera TTL metering systems work the same way as spot meters—by measuring the light reflecting off a subject—they're easily fooled. Remembering that these meters are, at their core, based on a middle gray reading, pointing your camera at a black cat in a black room is likely to return a reading that would provide an overexposed image because the meter thinks everything is middle gray. With a handheld incident meter, though, the tone of the scene doesn't matter, only the amount of light falling on it.



The Kenko KFM-1100 Auto Digi Meter is easy to use for both flash and ambient light readings. A smart Analyze function can measure flash and ambient light (nearly) simultaneously for precise exposure readings when working with multiple light sources. Contact: Kenko Tokina USA, www.kenkotokinausa.com.

Incident meters feature a white dome diffuser, which actually covers what otherwise would be a reflective meter (meaning it's also possible to use many incident meters for reflective readings, though they're not as accurate as spot meters, which have eyepieces for precision). The dome shape of the diffuser mimics the roundness of a human face. Just position the meter in front of the subject's nose and point the diffuser at the lens, then press the button to take a reading.

Some meters have flat or retractable diffusers, which can be useful for determining the amount of light falling on a subject from a single direction. Positioning the meter such that it's aimed at one source, and only sees light from that source, is good for balancing multiple lights and fine-tuning ratios.

Much like a camera, you can set your light meter to prioritize apertures (with a fixed aperture and a shutter speed that changes) or shutter speeds (the shutter speed stays fixed and the f-stop changes). You can also adjust the ISO to affect shutter and aperture values, and many meters include programmable memories so you can quickly change ISOs or refer back to previous readings in order to gauge lighting changes.

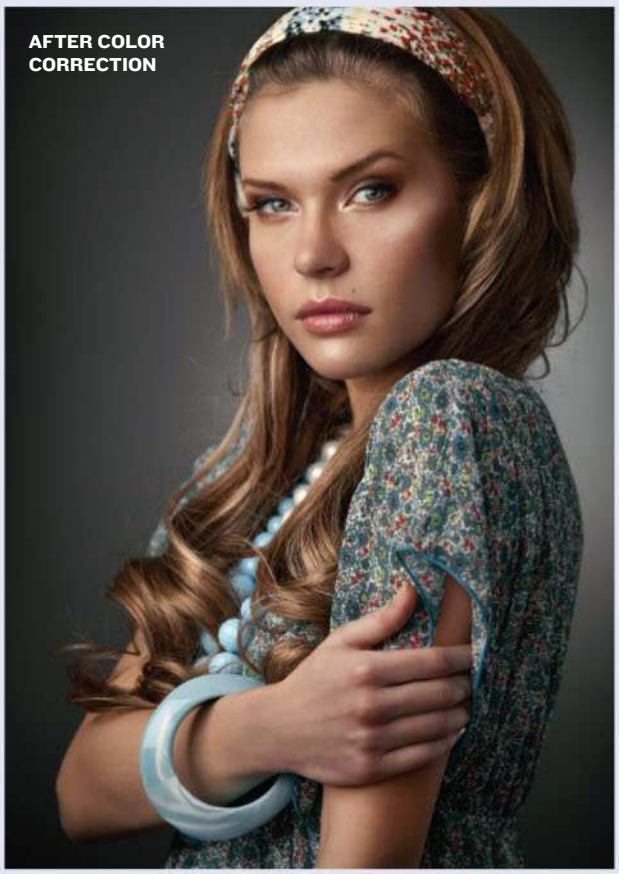
Many handheld meters also offer the ability to measure light from studio strobes or hot-shoe flashes. If you intend to use a strobe with manual output, a flash meter is crucial. It's possible to simply take a guess and adjust the flash exposure accordingly based on the camera's LCD, but this method is not only slower, it's less accurate and can be fooled by inaccurate LCD brightness—just as it can be when using the LCD to check ambient exposure. A calibrated light meter is always the best approach for lighting accuracy, especially with strobes.

To measure strobe output, most modern meters have a few options. First, you can set the meter to wait until it sees a flash of light before measuring, which works fine, but it's a bit clunky. Better yet is to manually fire strobes via a meter that's hardwired via PC connection or wireless radio. Either way, simply press the button to take a reading and the strobe will pop. Some strobe meters even feature cumulative measurements, adding up the total exposure from multiple bursts. This lighting technique is useful for maximizing depth of field, and it's one that's made easier and more accurate—as so many lighting issues are—thanks to a light meter. DP

CURVES FOR COLOR

USE THIS SIMPLE, YET POWERFUL TECHNIQUE FOR PERFECTLY NEUTRAL COLOR, BY THE NUMBERS

BY WES PITTS



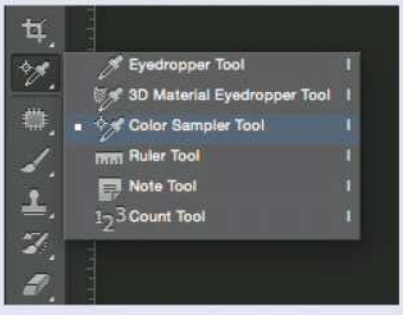
Maybe your white balance setting was off, or you've scanned an old slide, or you were dealing with difficult-to-control mixed light. Or, maybe your image looks pretty good, but you want to be sure you have perfectly neutral color, regardless of how accurately your monitor is calibrated. Working with Photoshop's Color Sampler Tool and a Curves Adjustment Layer, you can balance the colors in your photo with precision using the actual numerical values of each color channel—no guesswork involved.

It takes a little practice, but you'll soon be dialing in accurately balanced color for every image in just a few minutes. Here's how:

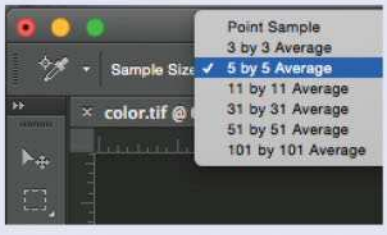
1. Click and hold the Eyedropper in the Tool palette and select Color Sampler Tool from the flyout menu.
2. Set sample size for the tool to something larger than Point Sample, since any given pixel could be off. The larger the resolution of the file, the larger the average you can use. This is a 5-megapixel file, and I'm using the 5 by 5 Average setting.
3. Click somewhere on the image that should be a neutral gray.
4. Check out the Info Pane and the RGB values there. These are the values of the point we just sampled. For a perfectly neutral gray, all three values will be identical. Notice that while Green and Blue values are relatively close, the Red channel is much lower, which makes sense considering the overall cyan cast of the image.
5. To fix this, we need to bring the Red value up. Start by adding a Curves Adjustment Layer (Layer > New Adjustment Layer > Curves, or by clicking the Curves icon in the Adjustments Pane).
6. Next, we'll be using the Properties Pane. Switch to that pane and click the onscreen adjustment option (the icon that looks like a finger pointing between two arrows). This allows you to click and drag up or down anywhere on the image to increase or decrease the value of the selected channel. I need to bring the Red value up, so I've selected the Red channel from the RGB dropdown.

BEFORE COLOR CORRECTION





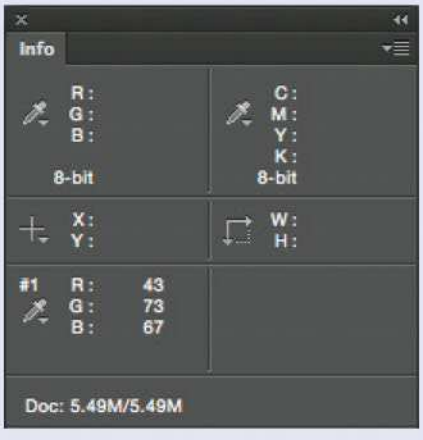
STEP 1: Select the Color Sampler Tool.



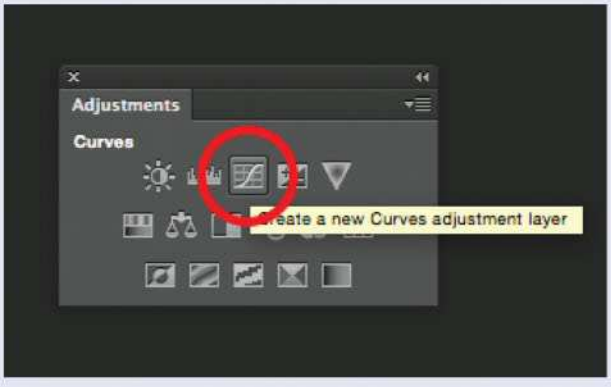
STEP 2: Set the sample size.



STEP 3: Click on a neutral gray area to take a sample.



STEP 4: The Info Pane shows the RGB values of the sampled area.

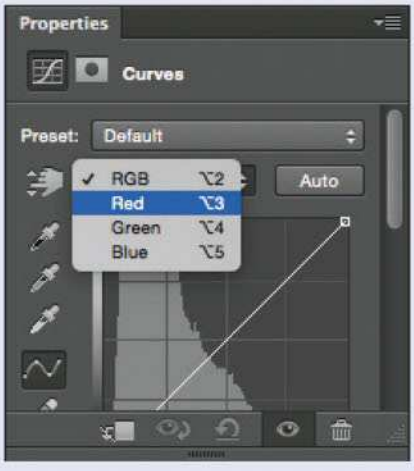


STEP 5: Add a Curves Adjustment Layer to start adjusting color.

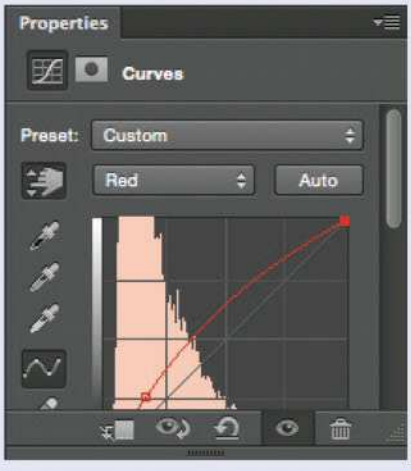
7. Now click and hold anywhere on the image while you drag the up or down to adjust the value of the Red channel. My point sample had values of R=43 G=73 B=67, so I dragged upward until the Red channel had the same value as the Blue channel, R=67.
8. To get all channels to the same value, I next selected the Green channel from the RGB dropdown and dragged downward, to bring the Green value down to 67. With all channels now at the same value, you'll see that the image has a much more neutral color balance.
9. To get the balance even more precise, try taking a sample from another area of the image that should be neutral. My first sample area was in a midtone area, so I placed two additional samples in shadow and highlight areas and balanced them using the same method. Note that when adjusting additional points, your original point may be affected. That's fine as long as the RGB values stay within a range of something near +/- 5. You can also go back and readjust the previous points and usually get them closer, if not precisely equal, as I did here.

Compare the final image with the original and you can see how powerful this relatively simple technique is for achieving accurate color balance. What I like most about the approach is that you're not relying on guesswork or judging by "look", nor will your eyes be fooled if your monitor's calibration is off, because you're making your changes based on the numerical values of each channel. It's a foolproof way to arrive at perfectly neutral color. DP

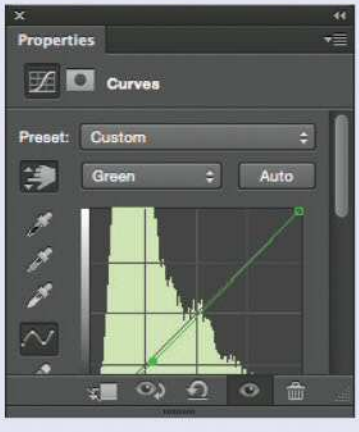




STEP 6: Select the onscreen adjustment option in the Properties Pane, and choose the color channel you want to adjust from the RGB dropdown.

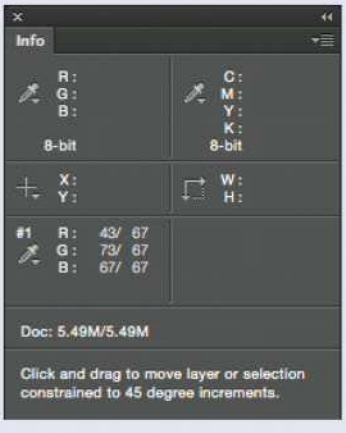


STEP 7: Properties Pane after adjusting the Red channel.
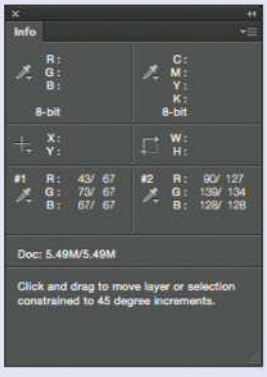


STEP 8:

Properties Pane after adjusting the Green channel.



Info Pane after adjusting both the Red and Green channels, bringing all three values to 67.



STEP 9:

Info Pane after taking a second sample in a lighter area of the image background.



Info Pane after taking a third sample and repeating adjustments until each sample's RGB values are identical.

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Something You Collect

EVERY COLLECTION TELLS A STORY

TEXT & PHOTOGRAPHY BY ALESSANDRA CAVE

There are numerous reasons why people collect. Some are interested in preserving memories and history, others are in search of the beautiful, odd, and rare, and still others are motivated by value and investment. But despite the specifics, every collection tells a story about the collector and its contents, making collections fascinating subjects to photograph.

A photograph that reveals a frivolous habit or an obsession of sorts can be very intriguing. And who doesn't love having a peek into someone else's life, especially when they discover an eccentric edge, a secret, or an endearing fact?

For this exercise, assemble and shoot a collection of your own treasured items. If you do not have an obvious collection, you can gather some of your belongings based on a theme. For instance, you can group old photos, journals, letters, and books. Anything goes as long as it tells a story about you and your personality. DP





Excerpted with permission from Shooting with Soul *by Alessandra Cave (Quarry Books, 2013), www.quarrybooks.com*



ALESSANDRA CAVE *is a commercial and editorial photographer living in San Francisco. She's also a writer, a teacher and the author of* Shooting with Soul, *an inspiration and technique book with 44 photography exercises exploring life, beauty and self-expression. Learn more about Alessandra and follow her work at* ***www.alessandracave.com.***



"Her umbrella was filled with rain she had collected in her travels & on hot summer days she would open it up for the neighborhood kids & we would splash in the puddles & then it would smell like Nairobi or Tasmania & later on we would sit on the porch & eat ice cream & watch for tigers in the bushes."

—StoryPeople



EXERCISE INSTRUCTIONS

1 | Photograph your collection either as an organized or a spontaneous arrangement. Experiment with styling to see what works best for your collection.

2 | If you are photographing multiple objects, throw in a surprise element, such as an item with an odd shape or a different color, to make your shot more interesting.

3 | Overhead shots are typically used for organized collections, but you might want to experiment with other approaches. Shoot straight on or at an angle.

TECHNIQUES

1 | If your collectibles are stored inside plastic sleeves, avoid unwanted reflections by shooting without a flash. For even better results, remove the sleeves. The same applies if your collection is framed behind glass. Remove the glass from the frame to avoid reflections.

2 | When shooting reflective objects such as silver jewelry, items made from metal, or glass ornaments, shoot at an angle to avoid reflections.

3 | If possible, use a tripod to keep the camera in place while you style the shot. You will want to move objects around until you find the best balance within the frame.

4 | Make sure all the elements are in focus.

SHOT IDEAS

1 | Photograph your shoes, hats, ties, belts, magazines, records, etc.

2 | A collection doesn't need to consist of one type of object. For instance, you could assemble and photograph an eclectic collection of favorite things: a book, a pin, a photograph, a postcard, and a feather.

3 | Start and photograph your very first collection! All you need is a minimum of three interesting items grouped together.

Ends Of The Day

SAVING AND ENHANCING SUNRISE AND SUNSET SHOTS | BY RICK SAMMON



We all love photographing beautiful sunrises and sunsets. When everything comes together—the correct camera settings, the light, the composition, the foreground subject, the background, the mood and the all-important clouds—we get a near-perfect in-camera photograph. Of course, there are times when our photographs need a bit of workin' and playin' in the digital darkroom.

In this Quick Fix column, I'll share with you some quick tips for improving, and perhaps saving, some of your sunrise and sunset photographs. To illustrate, I'll use a photograph that I took of the Camargue horses on my July 2015 Provence photo workshop.

Before we get going with enhancements, here's an important sunrise and sunset tip: Generally, the more interesting the foreground, the more interesting the photograph. Imagine this scene without the horses—a nice enough image, but one that lacks impact.



Here's the original file from which I created the image for this column. Due to a slip of my exposure compensation wheel while helping a workshop participant, my photograph is several stops overexposed. Not a good thing, but not the end of the world, thanks to a few quick fixes.



The first step in the quick fix was to crop and straighten the image. When I teach a photo workshop, I stress the importance of cropping because cropping gives us a second chance at composition. In cropping my photograph, I was careful not to crop out the reflection of the horses and the rider at the bottom of the image.

Next, I used the Camera Raw filter in Photoshop (the same adjustments that are available in Adobe Camera Raw and Lightroom) to fix and enhance my overexposed image.

In Camera Raw, I made the following adjustments:

- Reduced the Exposure to bring back detail in the sky.
- Increased the Contrast for a stronger silhouette.
- Reduced the Highlights to bring back some of the highlights in the sky.
- Reduced the White to preserve some of the detail in the sky.
- Increased the Clarity for a sharper photograph.
- Increased the Vibrance for a more vibrant image.
- Increased the Saturation for a more colorful image.





As a final step, I added an orange graduated filter in Nik Color Efex Pro (a plug-in in the Nik Collection by Google) to add some color to the sky. As you can see, the digital darkroom provides some very powerful tools for saving and enhancing our images.

Good luck on your next sunrise or sunset shoot, and keep the main message of this Quick Fix column in mind: If you don't like what you see on your camera's LCD monitor, don't press the delete button! Photoshop and Lightroom, along with some plug-ins, can save the day—and even turn a snapshot into an art shot. DP



RICK SAMMON *is a longtime friend of this magazine. Learn more from Rick on his website:* ***ricksammon.com****.*



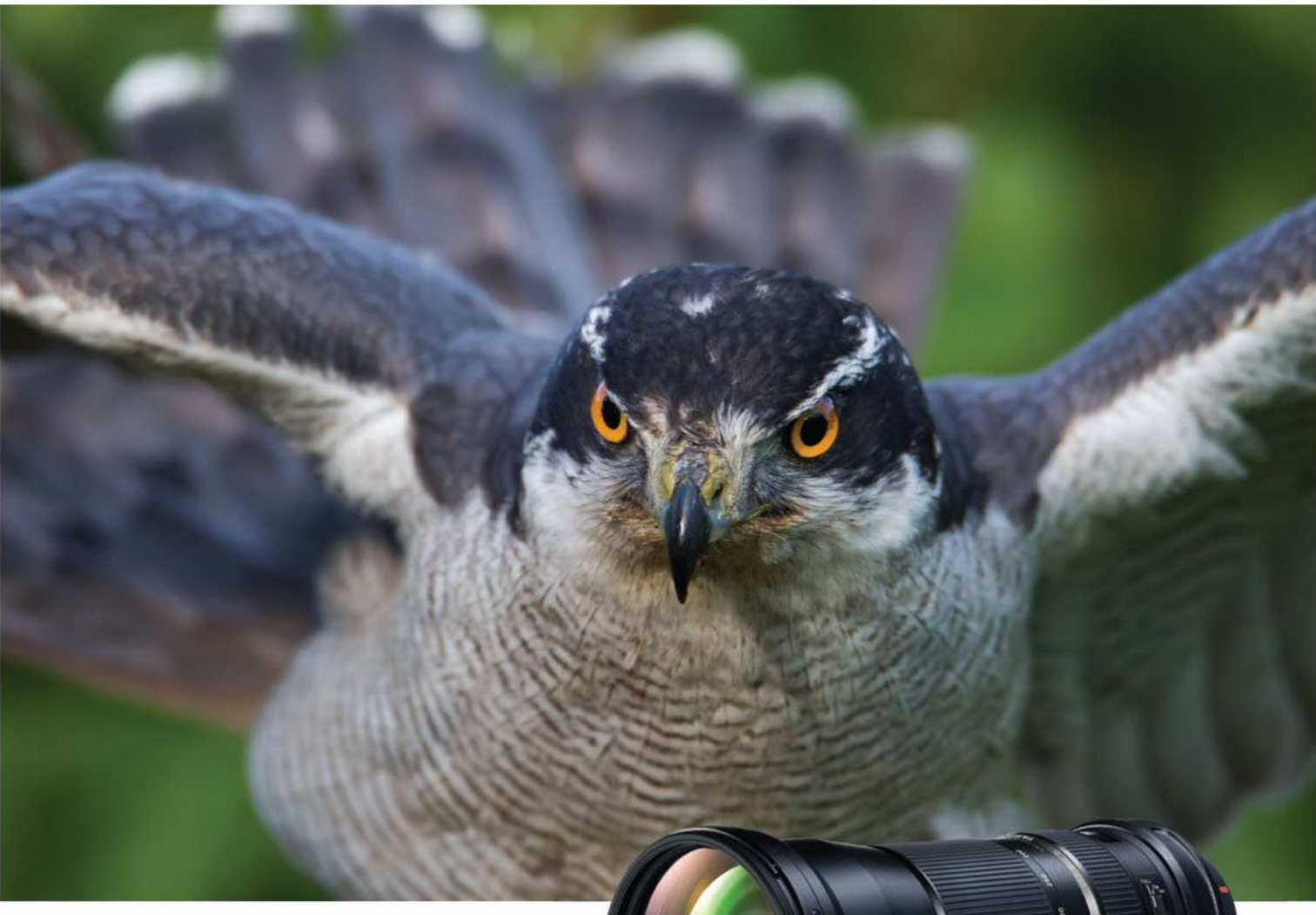
TIMOTHY DENEHY

Inner Circle

Some of the most intimate, meaningful images from milestone events like a wedding come not from the perfectly choreographed shots, but from candid, behind-the-scenes moments.

"This photo was taken at my cousin's wedding," recalls photographer Timothy Denehy. "It was very impromptu—she had all the little girls sit down to receive their goody bags. It was just as adorable in person, and to add to it, the rustic environment made for an unforgettable moment in time." *Canon EOS 5D Mark III, Canon EF 17-40mm ƒ/4L USM*

Timothy Denehy's photo is a finalist in our Weddings & Events 2015 Photo Contest. See all of the finalists at dpmag.com/photo-contests/weddings-and-events/finalists.



Focal length: 600mm Exposure: F/7.1 1/640 sec ISO800 © Hiroto Fukuda



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